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I. INTRODUCTION

The Louisiana Department of Environmental Quality (LDEQ) appears before the United States Senate Environment and Public Works Committee to provide testimony regarding response actions taken in the aftermath of Hurricanes Katrina and Rita to protect public health, safety, and welfare, and the environment, with emphasis on hurricane debris management.

The testimony below will briefly describe the devastation caused by these hurricanes; provide a summary of the response actions taken by the LDEQ working in coordination with its federal, state, and local government partners to protect the public health, safety, and welfare and the environment; provide an overview of LDEQ's responsibilities for tasks (with particular emphasis on the debris management mission); describe the collaborative process utilized by debris mission partners to authorize debris management sites; and provide a detailed explanation of the basis for LDEQ authorizations for two specific sites, the Gentilly and Chef Menteur Landfills, to receive hurricane related construction and demolition (C&D) debris.

Based on lessons learned from the combined Katrina and Rita disasters, the LDEQ will also describe events and processes that worked well and those that did not and make recommendations for plans and actions that are needed to address future disasters in an environmentally sound and efficient manner. Finally, the LDEQ will explain its plans to address the hurricane related increased illegal dumping that continues to prevent proper solid waste disposal in the New Orleans metropolitan area as it struggles to recover from these two hurricanes, and request resources to address illegal dumping resulting from this disaster.

II. BACKGROUND

A. Hurricane Katrina

On August 29, 2005, Hurricane Katrina struck the Louisiana gulf coast, causing widespread damage within 25 Louisiana parishes. Hurricane Katrina has proven itself to be the largest and most costly disaster to date in American history.

B. Hurricane Rita

On September 23 and 24, 2005, Hurricane Rita struck Louisiana, causing widespread damage to an additional ten parishes in the southwest portion of the state, and in addition causing further damage within a number of the same parishes devastated by Hurricane Katrina, notably the City of New Orleans, and Jefferson, Plaquemines, St. Bernard, and St. Tammany Parishes.

C. Impacts

The devastation caused on the Louisiana-Mississippi Gulf Coast by Hurricanes Katrina and Rita in August and September of 2005 cannot be adequately described in words. Statistics are useful but do not convey the experience of living through the violence of the storms and then, for survivors, the revelations of the aftermath. Many people's feelings mirrored the devastation of the natural and manmade environment around them—an environment ravaged by wind and water. More than 1,400 Louisiana residents lost their lives due to Hurricane Katrina, its approach caused the first mandatory evacuation in New Orleans' history, and it caused 1.3 million persons to leave their homes in south Louisiana. More than 200,000 Louisiana residents are still displaced.

While the damage done by the floodwaters was extensive, the weight of the water also caused damage. The two hurricanes poured 480 billion pounds of water into the city, resulting in about 80 percent of New Orleans being submerged for almost a month. The city's infrastructure, including hundreds of miles of underground utilities—electric, gas, water, drainage, cable, and phone lines—was damaged by the water's weight as, simply stated, portions of the city collapsed. Entire areas were pushed even further below sea level.

Altogether, these storms combined to generate over 62 million cubic yards of debris, enough to fill the Louisiana Superdome more than 10 times.

To address the unprecedented level of disaster caused by Hurricanes Katrina and Rita, a coalition of federal, state and local agencies formed under the National Incident Management System's Incident Command structure to respond to the emergencies. The LDEQ participated in numerous operations in

responding to the disasters. Although LDEQ has no directly assigned responsibilities for debris management under the state's Emergency Operating Plan, the LDEQ does have statutory responsibilities for the regulation of solid waste and protection of the environment. From the onset, the LDEQ has been engaged extensively with the United States Army Corps of Engineers (Corps) providing technical and regulatory assistance for their debris mission activities. Perhaps the LDEQ's most important roles have included the identification and approval of sites for handling and disposal of debris and to provide oversight to see that the debris is handled and disposed of in an environmentally safe manner.

Although recovery continues for the New Orleans metropolitan area, as of January 19, 2007, the United States Department of Homeland Security, Federal Emergency Management Agency (FEMA) reported that it had spent more than $30 billion in federal funds on response and recovery activities related to Hurricanes Katrina and Rita.

D. Expectations

For those members of federal, state, and local government called into action, the public's expectations of government was a primary consideration. With regard to the enormous amount of hurricane generated debris blocking roadways, downing power lines, and damaging buildings, preventing the return to normalcy, the public expected that the debris would be removed quickly and safely so that recovery could begin. Hurricane Katrina has led to the largest clean-up in U.S. history so far.

Faced with such a situation, all levels of government expect to work together within the incident command and emergency response structure to hammer out a coordinated plan of response that provides for the efficient removal and management of the hurricane generated debris and that is protective of human health, safety, and the environment.

E. Government Response to the Hurricanes

Preceding landfall of Hurricanes Katrina and Rita, Louisiana Governor Kathleen Babineaux Blanco issued declarations of emergency on August 26 and September 20, 2005, respectively, due to the imminent threat of high winds, torrential rain, flooding, damage to private and public property, and risk to the safety and security of the citizens of Louisiana. In the aftermath of each hurricane, the Governor extended the state of emergency due to the extreme damage caused and the continuing disaster and emergency conditions in the affected areas.

The federal government responded similarly, with presidential and FEMA declarations of emergency. On August 29, 2005, in response to Hurricane Katrina, FEMA issued a Disaster Declaration covering south Louisiana. On September 21, 2005, the President of the United States declared that an emergency existed in the State of Louisiana and authorized FEMA to mobilize and provide equipment and resources necessary to alleviate its impacts in response to Hurricane Rita.

F. LDEQ Emergency Response Activities

Consistent with the National Response Plan and the National Incident Management System, Louisiana's Office of Homeland Security and Emergency Preparedness (now GOHSEP) has a detailed Emergency Operations Plan. In this plan, LDEQ's responsibilities are contained primarily in Environmental Support Function 10 (ESF-10) – Oil Spill, Hazardous Materials and Radiation. LDEQ plays a support role in oil spills, but provides personnel and resources in the oversight of spill mitigation. LDEQ plays a support role in hazardous materials management. The Louisiana State Police has primary responsibility in this function during the emergency phase; however, LDEQ is responsible for the collection, removal, waste classification, transportation, and disposal of the hazardous disaster debris and wastes. LDEQ has primary responsibility for managing radiation issues.

LDEQ began assembling an Incident Management Team (IMT) at the LDEQ Headquarters, Galvez Building immediately following Katrina's landfall. A Unified Command Center (UCC) was established to house and support the IMT. In addition to LDEQ, the UCC contained representatives from the United States Environmental Protection Agency (EPA), Texas Commission on Environmental Quality, Corps, US Coast Guard, National Oceanic and Atmospheric Agency, US Geological Survey, Louisiana Oil Spill Coordinators Office, Louisiana Department of Health and Hospitals, and local governments.

Although the LDEQ's responsibilities under Louisiana's Emergency Response Operations Plan are limited primarily to ESF-10 - Oil Spill, Hazardous Materials and Radiation, the LDEQ responded to a broad range of needs immediately following the storms including:

- Search and rescue -- Teaming with the Louisiana Sheriff's Association, LDEQ employees aided in the rescue of approximately 480 people from the area impacted by Hurricane Katrina

- Reconnaissance, damage and environmental threats assessment including: industrial sites, oil spills, wastewater treatment plants, rail cars, barges, radioactive materials locations, drinking water sources and

intakes, underground storage tanks, ruptured pipelines, superfund sites, access routes, and photo documentation. Aerial reconnaissance was used to provide an initial evaluation of the status of industrial sites, water and wastewater treatment plants, rail cars, ships, barges, radioactive material locations, National Priority List (Superfund), and known hazardous materials sites. In addition to high resolution aerial photography and satellite imagery, also utilized were the EPA ASPECT aircraft, the Department of Energy's airborne radiation detectors and a helicopter mounted HAWK camera. Hazards such as oil spills and gas releases were photo documented and potential access routes were evaluated to assist first responders and for follow-up ground assessments.

- As facilities and sites became accessible, ground assessments were made of all potential sources and known releases of hazardous materials. Drinking water sources were evaluated for contamination and the operational status of water and wastewater treatment plants were determined. In many cases multiple visits to sites were made in order to ascertain that potential hazards had been secured. For example, 383 visits were made to 258 radiation source licensees in order to verify that all of the radiation sources had been secured. To date, more than 6,000 damage assessments have been made.

- Environmental Sampling and Assessment: with EPA and other partners, thousands of environmental samples were collected including floodwaters, Lake Pontchartrain and surrounding coastal areas, Mississippi River, sediment and soils, seafood, and air quality. Over a million individual analyses were performed and data and health risk assessments presented to the public on EPA and LDEQ websites.

- Hazardous Materials Management – With valuable assistance and resources provided by EPA, over 22.4 million of pounds of hazardous materials were collected and removed from waste streams for proper treatment and disposal. Over a million white goods such as refrigerators, 956,000 electronic goods, and 250,000 small engines were collected and sent to be recycled. Over 4 million orphan containers – many containing hazardous materials- were collected and processed for recycling or disposal. Over 110 school laboratories were cleared of hazardous materials.

- Debris Management -- The LDEQ has no assigned role in ESF-3, Public Works and Engineering, which addresses storm debris management. However, it does have statutory responsibilities for the regulation of solid waste and protection of the environment and has been engaged extensively with the Corps, the federal agency providing

assistance to the state in storm debris cleanup and disposal. LDEQ's principal role in the Corps' debris mission has been to identify suitable sites for handling and disposal of storm debris and to provide technical assistance with debris management issues. Surveillance and enforcement activities related to storm debris management fall under LDEQ's statutory responsibilities. In addition, the LDEQ is playing a major role in the removal and disposition of 350,000 flooded and abandoned vehicles and more than 60,000 abandoned vessels.

The LDEQ also provided assistance in other assigned areas such as ESF-11, Agriculture, in the disposal of animal carcasses, and ESF13, Public Safety and Security, by providing security for its own first responders during search and rescue activities. The LDEQ also incorporated the management and disposal of unwanted ammunition, firearms, and explosives as part of the ESF-10 debris mission; these were not handled by law enforcement.

G. Environmental Sampling and Reporting of Results

It is important to recognize that the basic premise of both the National Response Plan and the National Incident Management System is that incidents are generally handled at the lowest jurisdictional level possible. However, when both local and state resources and capabilities are overwhelmed, states may request federal assistance. Given the circumstances following Hurricanes Katrina and Rita, LDEQ requested assistance from the EPA to help with several tasks related to management and disposition of hazardous materials and with environmental sampling and assessment.

1. Soil/sediment

Beginning in September 2005, LDEQ and the EPA along with other federal and state partners conducted a comprehensive investigation to characterize any potential environmental effects to the parishes that were flooded by up to 10 feet of water from Lake Pontchartrain and the Mississippi River Gulf Outlet (MRGO). Since early September 2005, the agencies have collected approximately 2000 sediment and soil samples in Jefferson, Orleans, Plaquemines, and St. Bernard Parishes in four discrete phases. Most of these samples were analyzed for over 200 metals and organic chemicals.

As each phase of sampling was completed, the results were compared to conservative health-based screening levels for residential exposure developed by EPA and LDEQ. Summaries and general assessments of the data were developed by EPA and LDEQ with input from the Centers for Disease Control

(CDC), the Agency for Toxic Substances and Disease Registry (ATSDR), the Louisiana Department of Health and Hospitals (LDHH), and FEMA.

The sample results indicate that the sediments left behind by the flooding from the hurricanes are not expected to cause any adverse health impacts to individuals, including children. A few localized areas were re-assessed due to elevated levels of arsenic, lead, benzo(a)pyrene, and diesel oil range organic petroleum chemicals. The results of these re-assessments indicated that: 1) the highest concentrations of arsenic were likely associated with herbicides used at or near golf courses; 2) benzo(a)pyrene was found in a 1 acre section of the Agriculture Street Landfill Superfund site and will be addressed as the Housing Authority of New Orleans finalizes plans for badly damaged town homes in the area: 3) diesel and oil range organic chemicals are diminishing over time and are now below residential levels; and 4) the elevated levels of lead detected in samples collected by EPA are not the result of the hurricane. The lead results by EPA are comparable to the historical concentrations of lead in New Orleans soil found in studies conducted by local university researchers before the hurricanes.

2. Surface water

LDEQ worked with EPA, the United States Geological Survey (USGS), the Louisiana Department of Agriculture and Forestry (LDAF), and the Lake Pontchartrain Basin Foundation to monitor the quality of flood and surface waters in the Hurricane Katrina impact area. From September 2005 through March 2006, a total of 62,989 quality control and sample results have been produced, recorded and evaluated to date for Hurricane Katrina. This represents 497 sampling events from 64 sites sampled. Results for organic compounds and metals were mostly non-detect.

Of the over 40,000 results for organic compounds analyzed, only two exceeded non-drinking water human health criteria. Of the approximately 1,984 analytical results for metals, only 3 exceeded chronic aquatic life standards. Most impacts observed were a result of the hurricane and not a result of the pump down of floodwaters into Lake Pontchartrain. The quantity of floodwaters pumped from the New Orleans area into Lake Pontchartrain was estimated to be less than 5.0% of the lake's volume. The analytical data clearly shows that Lake Pontchartrain water quality was largely unaffected by the pumping of floodwaters from New Orleans.

3. Biota

Along with initial concerns about the health of Lake Pontchartrain came fears regarding the quality of the seafood found there. The results of sampling of flood waters and ambient Lake Pontchartrain waters helped mitigate these fears,

revealing no chemicals above levels of concern. However, with added prudence, the DEQ and the United States Food and Drug Administration (USFDA) embarked upon a five-week effort to sample and analyze tissues from commercially and recreationally important finfish and shellfish species. The USFDA laboratories analyzed 416 tissue samples for a wide variety of chemicals. The results confirmed that the seafood in Lake Pontchartrain is healthy and edible.

The analytical data showed that no advisory against seafood consumption was warranted. As an added precaution, fish and shellfish tissue will be sampled over the next 2-5 years to confirm the absence of chemical contamination in Lake Pontchartrain seafood. In addition, the USEPA and NOAA Fisheries have conducted offshore and near shore fish and shellfish tissue sampling in the Gulf of Mexico and found no contaminants at levels of concern. This is an important issue in the recovery of Louisiana, demonstrating and supporting the safety of the seafood, and therefore the viability of the seafood industry, as the seafood industry infrastructure (fishing vessels, docks, ice houses, processors, restaurants) struggles to overcome the physical impacts of Hurricane Katrina.

4. Air

In order to evaluate air quality while pre-Katrina air monitoring stations were being re-established, LDEQ collected twenty-three grab air sample canisters in the Katrina affected area. All samples were analyzed for a total of 59 target volatile organic analytes (VOC). In addition, a Photochemical Assessment Monitoring Stations (PAMS) hydrocarbon analysis was performed to quantify total non-methane hydrocarbons and identify 56 common hydrocarbon species. The majority of the grab samples had reported VOC concentrations at or slightly above normal ambient background levels. All of the detected VOC concentrations were well below the Louisiana ambient air standards and the ATSDR Minimal Risk Levels (MRL).

EPA conducted air sampling in New Orleans and the surrounding areas following Katrina. The EPA Trace Atmospheric Gas Analyzer (TAGA) results indicated that there were elevated concentrations of benzene in the area affected by the release from Murphy Oil (Chalmette) shortly after the storm. The TAGA is a self-contained mobile laboratory capable of continuous, real-time sampling and analysis. It can detect chemicals in the low parts per billion levels of outdoor air or emissions from various environmental sources. Subsequent air sampling in this region indicates that benzene concentrations have decreased and are now below screening levels. Sampling in other areas indicated that the chemical concentrations present in the air were below ATSDR screening levels. EPA also collected several sets/rounds of total particulate samples in Orleans and St.

Bernard Parishes. This data indicates that the particulate concentrations were well below the level of health concern for Particulate Matter (PM 10).

In November 2005, DEQ prepared a report on air toxics based upon data collected from the established Kenner air monitoring site. A total of 47 samples were collected and analyzed on the 24-hour sampler between September 11, 2005 and November 13, 2005. The most abundant compounds found in these samples were propane, ethane, acetone, isopentane, toluene and n-butane. All of these compounds were detected within the normal concentration range for an urban area. The general profile of compounds detected was very typical of an area dominated by mobile source emissions. The total hydrocarbon reading averaged 147 ppbC which is slightly below the normal range for an urban area. None of the average concentrations for any of the targeted VOCs were above the annual average Louisiana Ambient Air Standards, nor were any of the individual sample concentrations above the 8 hour ambient air standards.

H. LDEQ Emergency Orders

On Sunday, August 28, 2005, LDEQ Secretary Mike D. McDaniel, Ph.D., convened a special meeting of his staff to discuss preparations for the hurricane. One of the outcomes of that meeting was a Declaration of Emergency and Administrative Order (emergency order), which the Secretary signed on August 30, 2005 to address the emergency conditions and measures deemed necessary in the wake of Hurricane Katrina to prevent irreparable damage to the environment and serious threat to life or safety throughout the designated emergency areas. Considering post-landfall conditions, a nearly identical emergency order was issued on September 27, 2005 in response to Hurricane Rita.

These emergency orders have been revised and reissued every sixty days based on additional information and changing conditions; they are still in effect in the most severely affected areas. Each order contained certain measures specifically authorized by the LDEQ and determined necessary to respond to the emergency. **Exhibits 1 and 2** contain the latest two versions of the Hurricane Katrina emergency order; the Hurricane Rita orders are very similar.[1]

The LDEQ has a duty under the Louisiana Constitution to strike an appropriate balance between protection of the environment and economic, social, and other factors, consistent with the health, safety, and welfare of the people. The emergency orders have been an important part of LDEQ's fulfillment of that duty in the aftermath of Hurricanes Katrina and Rita. LDEQ's goal and expectation

[1] All orders addressing Hurricanes Katrina and Rita are available on the LDEQ website at http://www.deq.louisiana.gov/portal/Default.aspx?tabid=2570.

has been that the emergency orders would provide the information and regulatory flexibility to allow debris management and other recovery-related activities to occur as quickly as possible and in an environmentally sound manner.

1. Purpose of emergency orders

The emergency orders serve the dual purposes of:

- providing regulatory flexibility essential to the hurricane recovery efforts, as allowed under the Louisiana Environmental Quality Act (see, e.g., La. R. S. 30:2033), and
- providing useful information to the public about Louisiana's environmental laws and regulations.

2. Regulatory flexibility

The regulatory flexibility provided by the emergency orders consisted primarily of the temporary relaxation of procedural requirements for activities in the defined Emergency Areas, in order to expedite the restoration of important services and the removal of the enormous volume of hurricane debris. The emergency orders did not allow any activity that would endanger human health or the environment, and the orders had very little effect on substantive requirements, such as the limitations on effluent discharges to waters of the state. The orders generally required such standards as would a permit but did not require the time associated with the administrative process of obtaining a permit.

It was immediately necessary to provide regulatory flexibility to allow water discharges for necessary services and activities, such as potable water treatment, sanitary discharges where systems had been damaged, temporary housing locations, and temporary gasoline dispensing locations. The affected public needed safe drinking water, functioning sanitary facilities, and adequate shelter. Fuel was needed for first responders in the first days and weeks; fuel was also needed by the public, e.g., to operate generators on a continuing basis during widespread power outages. Regulatory flexibility was provided by managing such discharges in a manner protective of human health and the environment, as follows:

- Allowing the discharge of wastewaters associated with potable water treatment systems in the emergency areas, without a permit, and without first submitting a notice of intent to LDEQ. All such discharges were required to comply with the substantive limitations on effluent pollutant parameters set forth in the permit that is normally required for such discharges and the operator was required to monitor and report

analytical information in compliance with the regulations. The authority granted by this provision enabled the timely operation of portable drinking water treatment facilities in areas with no other source of safe drinking water.

- Allowing the discharge of gray water (domestic wastewater from all sources except toilets) within the emergency areas, without a permit. All such discharges were required to comply with the substantive limitations on effluent pollutant parameters set forth in the permit that is normally required for such discharges and the operator was required to monitor and report analytical information in compliance with the regulations. This provision facilitated the location of temporary housing for displaced hurricane victims.

- Allowing the discharge of storm water runoff by the Corps from construction activities related to response activities in the emergency areas. This allowed the Corps to take immediate action wherever needed, such as repairs to the levee system.

The LDEQ made these water discharges possible through issuance of emergency orders. The emergency orders provided standards and limitations, including effluent standards required by the Clean Water Act Amendments. The Secretary determined that there was greater potential for harm to the public health, safety, and welfare and to the environment from the delay of discharge of the wastewaters addressed in the orders until a permit could be issued. The orders represented the most prudent way of addressing immediate environmental problems created by the hurricanes while still providing protection for human health and the environment. Protective substantive limits and reporting requirements were imposed; only administrative processes associated with permits were curtailed by the orders.

It was also necessary to provide regulatory flexibility to manage the vast amounts of debris generated by the hurricanes in an efficient and environmentally sound manner. The emergency orders provided this flexibility in the following terms with regard to solid waste disposal facilities (landfills):

- Allowing landfills to handle a greater volume of waste per day than current permits allowed. Permit limits on volume are based on normal conditions; they do not anticipate, and are not appropriate for, addressing debris management needs of the worst natural disaster in the nation's history.

- Expanding the scope of the Louisiana definition of C&D debris to include items not provided for in the LDEQ's solid waste regulations.

See **Exhibit 3**, LAC 33:VII.115. Appendix D of the Emergency Declarations and Orders listed material to be considered as C&D debris:

1. Nonhazardous waste generally considered not water-soluble, including but not limited to metal, concrete, brick, asphalt, roofing materials, sheet rock, plaster, lumber from a construction or demolition project, and other building or structural materials;

2. Furniture, carpet, and painted or stained lumber contained in the demolished buildings;

3. The incidental commingling of construction and demolition debris with non-friable asbestos-contaminated waste. (i.e., incidental non-friable asbestos-contaminated debris that cannot be extracted from the demolition debris); and

4. Yard waste and other vegetative matter.

Under ordinary circumstances, LDEQ regulations (unlike federal requirements) prohibit the disposal of the previously listed items in landfills that are permitted only for C&D debris. The rationale for the LDEQ regulations' prohibition is that furniture, carpet, yard waste, etc., under ordinary circumstances, are frequently mixed with household garbage containing putrescible waste, for which C&D landfills are not designed. In the aftermath of the hurricanes, in contrast, the wastes listed above are usually mixed with non-putrescible C&D debris, and segregation of the waste types is simply not practical. A determination was made by LDEQ, in consultation with EPA, that these items could be disposed of in a C&D landfill with no threat to the environment or human health. As noted above, flexibility extended to the difference between state and federal regulations. No federal regulation or standard was violated by granting this flexibility.

In addition, the emergency orders provided for other debris management processes, by existing C&D facilities as well as new, temporary debris staging and disposal sites:

- Allowing site-specific authorization by LDEQ for disposal in an "enhanced" C&D debris landfill of construction and demolition debris generated from residential structures of four units or less that are subject to a government-ordered demolition, and that are assumed to contain potential asbestos-containing waste material. In order to accept such wastes, a C&D landfill must comply with special requirements set forth in the emergency orders that ensure the protection of workers and the public from asbestos emissions, such as perimeter air monitoring,

disposal of asbestos-containing material in dedicated areas separate from non-asbestos containing C&D waste, prohibition of visible emissions, daily cover and warning signs. Enhanced C&D landfill requirements meet or exceed federal requirements for disposal of asbestos waste.

- Allowing the discharging of wastewaters from C&D landfills without a permit, provided that the discharges meet certain limitations on effluent pollutant parameters, and provided that the operator monitors and reports analytical information in compliance with the regulations.

- Allowing management of uncontaminated debris at unpermitted temporary staging areas.

- Allowing site-specific authorizations for temporary storage, chipping, grinding, and burning of hurricane-generated vegetative debris at staging areas.

- Allowing local governments to burn hurricane generated vegetative debris such as trees, leaves, vines, twigs, branches, grass, without prior notice to LDEQ.

- Allowing the commencement of emergency demolition or emergency cleanup of asbestos-containing material resulting from the hurricanes, without prior notification to LDEQ.

Although the emergency orders expanded the scope of C&D debris for hurricane generated debris, the material otherwise included is not considered to be a threat to the environment and is consistent with minimum federal requirements. In addition, it is not feasible during emergency conditions to follow normal administrative permitting processes that usually take in excess of six months.

The emergency orders also allowed repairs to permitted solid waste management facilities, as necessary to restore essential services and the functionality of storm water management and leachate collection systems damaged by the hurricane, without prior notice to LDEQ. This provision was necessary to ensure that there was as little impact as possible to the environment from existing facilities that may have been damaged by the storms.

The orders also provided flexibility and information for other regulated facilities, such as those with underground storage tanks. Requirements for release detection, corrosion protection, and inventory control applicable to owners and operators of underground storage tanks were temporarily suspended, during the time that the tank system was not accessible due to conditions resulting from the

hurricanes. However, the emergency orders also required an emergency evaluation of the tank system before returning it to service, according to the protocol set forth in the emergency orders.

2. Public information

The public information function of the emergency orders included, among other things:

- Guidance to assist operators of sanitary wastewater treatment systems in start up and operation.
- Guidelines for temporary housing sites, including requirements relating to sanitary wastewater treatment and discharge, storm water discharges associated with construction, household waste collection and recycling, and site closure.
- Guidance for compliance with the Louisiana Emission Standards for Hazardous Air Pollutants, as they relate to asbestos, during demolition and renovation activities.

Since the issuance of the first emergency order after Hurricane Katrina, LDEQ has continued to revise the emergency orders in response to new information and changing conditions For example, LDEQ has recently eliminated several parishes from the Emergency Areas to which each emergency order applies. These changes are in response to the recovery progress that has been made in many areas.

III. HURRICANE DEBRIS MISSION

A. Overview of Debris Mission

The hurricanes left more than 62 million cubic yards of debris, millions of orphan drums and containers of unknown origin and content; over 350,000 flooded and abandoned cars; over 60,000 flooded, damaged, and/or abandoned vessels; over one million units of white goods; over 956,000 units of electronic goods; and 140,000 to 160,000 flooded homes.

The removal and proper management of debris after these two hurricanes was and continues to be a critical element of the recovery efforts. Without debris removal, there can be little rebuilding and repopulating. All types of debris, household contents, houses, cars, vessels, trees, white goods, electronics and more must be removed and properly disposed of in order for citizens to return to their homes and businesses. Although more than 12,000 storm damaged houses have been demolished, it is estimated that about 30,000 additional homes remain to be demolished and disposed.

As of January 19, 2007, the Corps had removed 26,428,074 cubic yards of debris under a FEMA-funded mission assignment. This includes debris from demolition activities.

As of February 14, 2007, more than 51 million cubic yards of debris has been removed. Of this amount, 22.4 million pounds of hazardous and industrial waste were recovered and properly disposed. In addition, more than one million units of white goods and more than 956,000 units of electronic goods have been recovered and recycled.

Other information provided in chart form below summarizes the debris mission progress to date and the work still to be accomplished. This chart includes all debris removed pursuant to any FEMA-funded mission, not just the debris removed by the Corps.

Hurricanes Katrina and Rita Recovery: Debris Removal Status
(Data from FEMA as of January 22, 2007)

Parish	Estimated (CY)	Removed (CY)	Remaining (CY)
Calcasieu	5,027,729	5,021,529	6,200
Cameron	1,492,757	1,425,075	67,682
Iberia	164,286	164,286	0
Jefferson	5,493,661	5,262,586	231,075
Lafourche	279,595	279,595	0
Orleans	18,583,493	12,692,514	5,890,979
Plaquemines	2,554,853	2,462,688	92,165
St. Bernard	8,447,103	4,376,981	4,070,122
St. Charles	275,465	275,465	0
St. Mary	57,888	57,888	0
St. Tammany	10,197,224	9,633,379	563,845
Tangipahoa	741,991	741,991	0
Terrebonne	168,193	168,193	0
Vermillion	738,843	481,938	256,905
Washington	2,647,647	2,647,647	0
Total	62,242,854	51,063,881	11,178,973
		82.04%	17.96%

Hurricanes Katrina and Rita Recovery: Demolition Status
(Data from FEMA as of February 2, 2007)

Parish	Demolitions Completed	To Be Demolished
Calcasieu	321	12
Cameron	484	10
Iberia	71	6
Jefferson	681	284
Lafourche	9	0
Orleans	2,664	12,336
Plaquemines	2,133	99
St. Bernard	4,232	11,418
St. Mary	54	0
St. Tammany	1,457	923
Terrebonne	10	0
Vermillion	204	0
Washington	64	0
Total	12,384	25,088

B. Debris Mission Task Force

Following landfall of Hurricane Katrina, the LDEQ joined forces with other federal, state, and local agencies for the purpose of orchestrating and implementing a plan for the management of the then estimated more than 55 million cubic yards of debris. Designated as “Debris Operations”, these agencies met daily, sometimes meeting two or three times a day as sub-committees, to address planning needs, actual and potential legal issues, agency authority and resources, and to organize which agencies would be responsible for particular tasks in the overall mission. For example, one of the subcommittees was charged with the development of a checklist and/or flow diagram to be used as a tool by state and local government entities to assist them in making a decision on the condemnation and demolition of public and private buildings and residences.

It was clear that the debris mission’s scope would require the expertise and resources of all agencies to handle the amount of hurricane debris in an efficient and environmentally sound manner. The following agencies worked in collaboration to identify the debris management mission; develop the process to authorize debris management sites; and provide guidance to local government, clean up contractors, and the public:

- City of New Orleans
- St. Bernard Parish
- GOHSEP

- LDEQ
- Louisiana Department of Transportation and Development
- LDAF
- Louisiana Department of Wildlife and Fisheries
- CDC
- EPA and its contractor START
- United States Federal Emergency Management Agency (Congressional, Debris, Office of General Counsel, Safety, Infrastructure)
- Corps and its contractors: Phillips and Jordan, ECC, and CERES Environmental
- United States Coast Guard
- United States Department of Agriculture
- National Disaster Medical Service/ Disaster Mortuary
- United States Natural Resources Conservation Service (USDA-NRCS)
- United States Department of Homeland Security, Office of Inspector General, Office of Audits

C. Debris Management Plan

The intent of the debris management plan, to be developed by the debris mission task force, was

> [T]o formalize a process that will enable the State of Louisiana, [the Corps], and [FEMA] to comprehensively manage funding for large scale and complex debris clearances. The plan was also to address the responsibilities of the various Federal, State and local governmental agencies to control the removal and disposal project for the designated parishes.

The purpose of the plan was to furnish local governments with basic information on hurricane debris management within the scope of effective environmental management. Local governments were understandably unable to use normal non-emergency resources and processes to manage the unprecedented amount of hurricane debris. The plan was also designed to ensure that debris management projects met requirements of the Stafford Act, its regulations, and all applicable environmental laws; assist the state and parishes with contracting and contract monitoring as necessary; and to the extent possible, avoid eligibility, contractual, and environmental problems.

The group recognized that the plan should be considered a starting point, with recommendations for a regional disaster debris management plan requiring the approval of all government agencies before the final plan could be implemented.

1. Process for approval of debris management sites

Based on its jurisdiction over solid waste regulation, the LDEQ was tasked with developing a process to identify and approve hurricane debris management sites. It did this in consultation with its debris mission partners, particularly the Corps and EPA. As early as September 28, 2005, the LDEQ had prepared a Debris Management Plan, which was subsequently revised. See **Exhibit 5.** The plan was provided to the task force members for review, and finalized by LDEQ in consultation with these same debris mission partners.

While the LDEQ's jurisdiction over solid waste extends to determining need (capacity) and suitability of facilities, it does not include the authority to direct waste to be disposed in any particular facility. In addition, it is LDEQ's policy that no staff member shall direct or refer business to any individual or entity.

Based on the plan, local government and LDEQ were responsible for identifying and approving appropriate staging, processing and disposal sites for hurricane generated debris. All sites used for staging or disposal of hurricane generated debris that did not already possess a valid LDEQ permit were initiated by receipt of a request from a parish or other local government authority; the request included identification of potential sites and the type of activity to be performed at each location. See **Exhibit 6**, the initial request form. The LDEQ evaluated several different types of potential sites: debris management sites for staging of different types of hurricane generated debris; chipping, burning, and grinding of wood waste; and disposal of C&D. Following this process, approximately 400 sites were approved for this purpose.

Site evaluation began with a visit to the site by an LDEQ representative, and a representative of one or more of its debris mission partners, the Corps, and/or FEMA. Each site was assessed based on the criteria sheet provided by FEMA. See **Exhibit 7**, Emergency Debris Management Site Certification Form. The criteria was discussed and adapted as needed to fit the variations presented by each site and local needs.

For C&D/wood waste disposal, the LDEQ supplemented these criteria by requiring individualized site suitability analyses by an LDEQ engineer or geologist using visual observations, test pits, soil borings, or any other available methods/information. Soils with low permeability and groundwater classification were the key criteria for site approval. In the event that soils did not meet geological requirements, the location was either denied or additional

requirements, such as installation of a clay liner, were imposed. This site analysis process was designed to be as close to that of the actual analysis required for C&D disposal sites without the delay associated with strict compliance with the procedural and/or administrative regulations to obtain a permit.

All sites were and are required to be operated in accordance with a written operational plan approved by LDEQ. Furthermore, all sites are required to be closed in accordance with the technical requirements of the pertinent regulations.

With the exception of the slow pace of demolition of flood damaged structures, the clean up and disposition of hurricane debris has gone reasonably well. The debris cleanup and disposal in the Rita impacted portions of the state are essentially complete. Accordingly, the C&D disposal sites authorized by the Emergency Declarations and Orders in this area will shortly cease accepting waste and begin closure procedures. According to FEMA, as of February 9, 2007, cleanup and disposal in the Katrina impacted area is 75 percent complete, with the remaining debris associated primarily with the demolition and disposal of flood damaged structures. It is estimated that about 30,000 structures in both St. Bernard and Orleans Parishes will have to be demolished and disposed of. The pace of the demolitions is tied primarily to authorizations provided by local governments. FEMA also estimates that the Hurricane Rita debris mission is 96.4 percent complete.

D. LDEQ Authorizations for the Gentilly and Chef Menteur Landfills

The emergency orders applied to all permitted solid waste disposal facilities (landfills), including the Gentilly solid waste disposal facility, which, at the time of Hurricane Katrina, had already received its LDEQ permit. In addition, the emergency orders were used to authorize operation of unpermitted C&D landfills; Chef Menteur was a prime candidate for such authorization due to a number of factors, which are set forth in more detail below.

1. Gentilly Landfill

The City of New Orleans submitted a permit application to LDEQ in June 2002 to construct and operate the Gentilly Landfill for the disposal of C&D debris and wood waste. On December 28, 2004, a permit to construct and operate the Gentilly Landfill was issued by LDEQ. Thus, at the time of Hurricane Katrina, the Gentilly Landfill was permitted and was in the process of completing required tasks necessary under the terms of the permit before it could receive its order to commence operations.

The 2004 permit for the Gentilly Landfill authorized the construction of a landfill over a previously closed municipal landfill. This “piggyback” concept has been

used before in Louisiana and other parts of the country. The goal of this technique is to fully maximize the utilization of an area that has already been utilized for disposal of waste, thus preserving green space. Using the "piggyback" concept, the existing cover system over the closed landfill acts as a liner system for the new landfill on top.

The Louisiana Solid Waste Regulations require C&D landfills to be constructed over an area with low permeability of soils. The existing cover system of the closed municipal landfill at Gentilly Landfill meets this requirement.

In accordance with the LDEQ regulations, a public notice of the draft permit was published inviting public comment. The LDEQ did not receive any public comment during the public comment period that placement of waste on top of the closed landfill would cause any adverse environmental impact. The LDEQ issued the final permit on December 28, 2004.

Before the facility had completed minor permit requirements (e.g., the installation of a fence around the facility) necessary to receive an order authorizing commencement of operation pursuant to LAC 33:VII.509.C.(4), Hurricane Katrina struck Louisiana. On September 29, 2005, after Hurricane Rita had swept through the state, adding its devastation to that of Katrina, the LDEQ issued an order authorizing commencement of operations at the Gentilly Landfill **Exhibit 10**. In the aftermath of the destruction of these two storms, the LDEQ had determined that the facility was sufficiently complete to commence operation and was a necessary component of the recovery efforts for the New Orleans metropolitan area.

A later decisional document, **Exhibit 15**, issued by LDEQ on January 20, 2006, sets out the factors weighed in the decision to utilize the Gentilly Landfill site to receive hurricane generated C&D debris.

a. Need and suitability determination of Gentilly Landfill to receive hurricane C&D debris

The decision to use Gentilly Landfill to receive hurricane generated C&D debris was based on the need for the facility and its suitability to receive such debris. The LDEQ determined that massive amounts of debris had been generated by the two storms. The LDEQ also anticipated that the damage caused by flooding would result in generation of additional demolition debris. The Corps' initial estimates were that 55 million cubic yards of debris had been generated by the storms in southeast Louisiana. At that time, an estimated 140,000-160,000 homes in southeast Louisiana received flood damage.

Following receipt of a request from local government to use Gentilly Landfill to receive hurricane C&D debris, the LDEQ issued an order authorizing commencement of operation for the Gentilly Landfill on September 29, 2005. Following issuance of this order, public concerns over the use of the facility were raised. In response to these public concerns, LDEQ required groundwater and soil samples to be collected. These samples, as well as data from the city's groundwater monitoring plan, showed no adverse environmental impact from the old landfill.

After evaluating these concerns, the LDEQ issued its decisional document, **Exhibit 15**, that responded to these concerns and therein authorized the continued operation of the facility and revoked the Order Authorizing Commencement of Operation issued September 29, 2005. The decisional document provided the reasoning and rationale for the decision to continue to authorize the Gentilly Landfill. Specifically, in its decisional document, the LDEQ noted that previously, during the initial review of the LDEQ permit application, several borings were drilled through the waste in the underlying landfill to determine the suitability of constructing a C&D landfill above the old municipal landfill. The data, once analyzed, indicated that waste had undergone biodegradation, likely attributable to the partial closure and aerobic conditions in the old municipal landfill. The decisional document also reflects that as part of the collaborative site assessment process, on November 11, 2005, EPA conducted a separate assessment and found no concerns regarding groundwater or any other contamination concerns.

Two other locations were considered as alternatives prior to authorizing the use of Gentilly Landfill: Recovery 1 and Amid. The decisional document sets forth that Recovery 1 was rejected due to concerns related to its existing height, landfill stability, and imposition of additional loads. The available area was smaller than 20 acres and consequently would not provide sufficient air space for the large capacity of debris to be disposed. It was further determined that Amid, an existing C&D landfill, had only three months of air space remaining, and was therefore also inadequate for the debris generated in the area.

The LDEQ noted that the Gentilly site met all of the technical requirements for a Type III C&D Landfill, as demonstrated by the issuance of the permit in December 2004. In addition, the Gentilly site is in close proximity to the hurricane devastated areas and therefore to the bulk of the hurricane generated debris. Further, the Gentilly Landfill site is located in a remote location, and except for some industrial development, is relatively undeveloped. See **Figure 1** below. Due to the remoteness of the location, waste haulers can readily access roads to the landfill. For all these reasons, the Gentilly site was the preferred alternative.

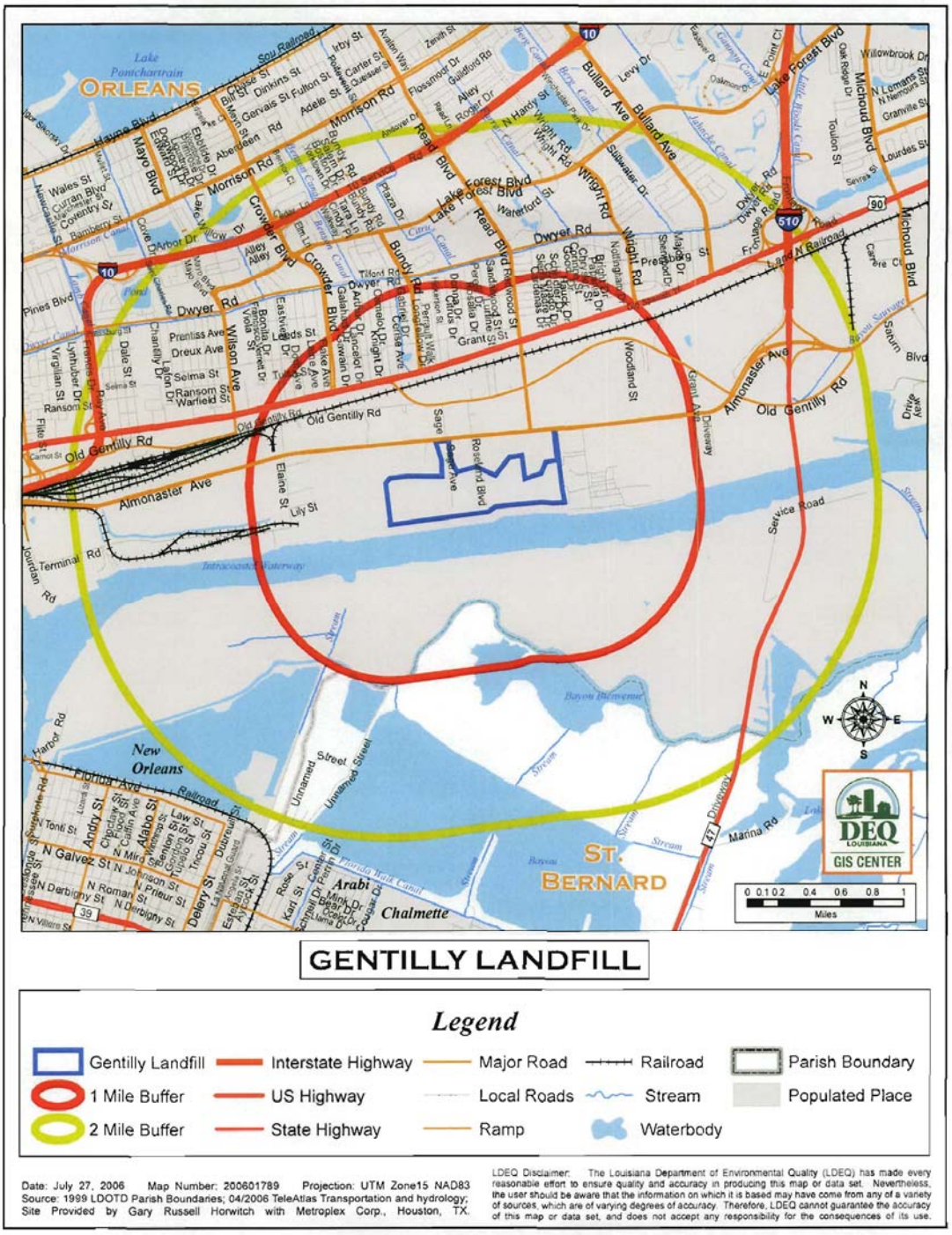

Fig. 1

The decisional document details further alternatives considered by LDEQ based on concerns raised by opponents to the use of the Gentilly Landfill. Existing

landfills in Jefferson Parish, specifically Riverbirch and Highway 90 Landfills were also considered by LDEQ.

Riverbirch is a Type I & II landfill used for disposal of industrial solid waste and residential or commercial solid waste. It is generally more expensive to dispose of waste at a Type I/II facility, due to the additional regulatory requirements for these landfills, including liners and leachate collection systems. These additional requirements are unnecessary for landfills receiving C&D debris, so placing C&D debris in a Type III landfill is a more efficient use of landfill capacity and resources for this relatively benign type of waste, thus reserving the Type I and II landfills' disposal capacity for industrial and municipal solid waste, respectively.

The Highway 90 Type III facility located in Jefferson Parish was then (and is currently still) accepting hurricane generated C&D debris, and was subject to the same design requirements and standards as the Gentilly Landfill. However, the LDEQ determined that Highway 90 alone could not efficiently process the unprecedented amount of hurricane C&D debris to be disposed. The LDEQ decision to authorize Gentilly Landfill's immediate use in addition to that of Highway 90 recognized that use of Highway 90 included a number of transportation and other safety considerations: increased distance, traffic congestion, longer transport time, and the ability of the facility to safely process such a large daily volume of debris. See **Figure 2** below. Waste transporters reported that they could haul four or five trips per day to Gentilly as opposed to two trips per day to Jefferson Parish disposal facilities.

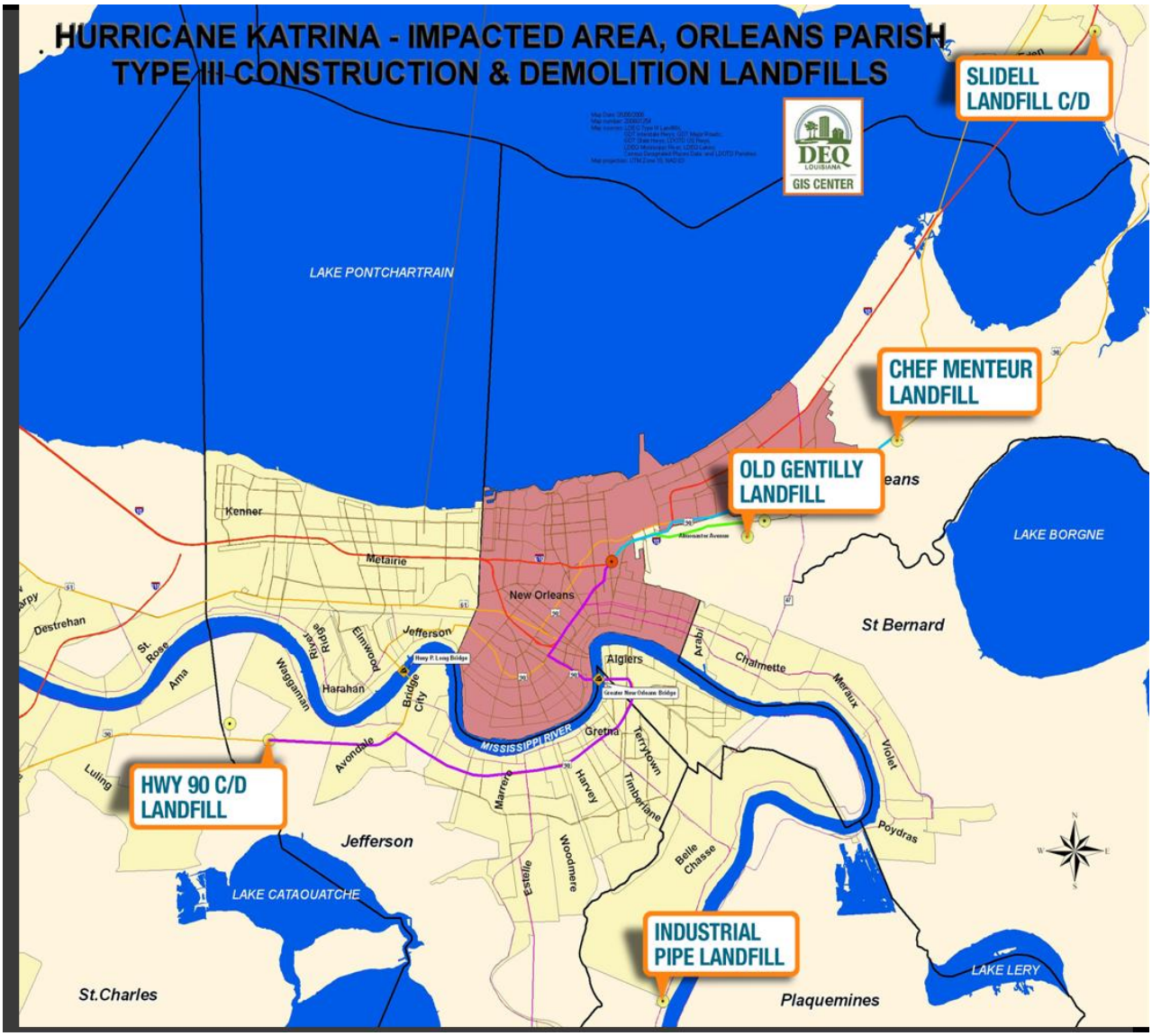

Fig. 2

The legend and graphics in **Figure 3** below show the distance in miles to Gentilly and to the facilities in the vicinity.

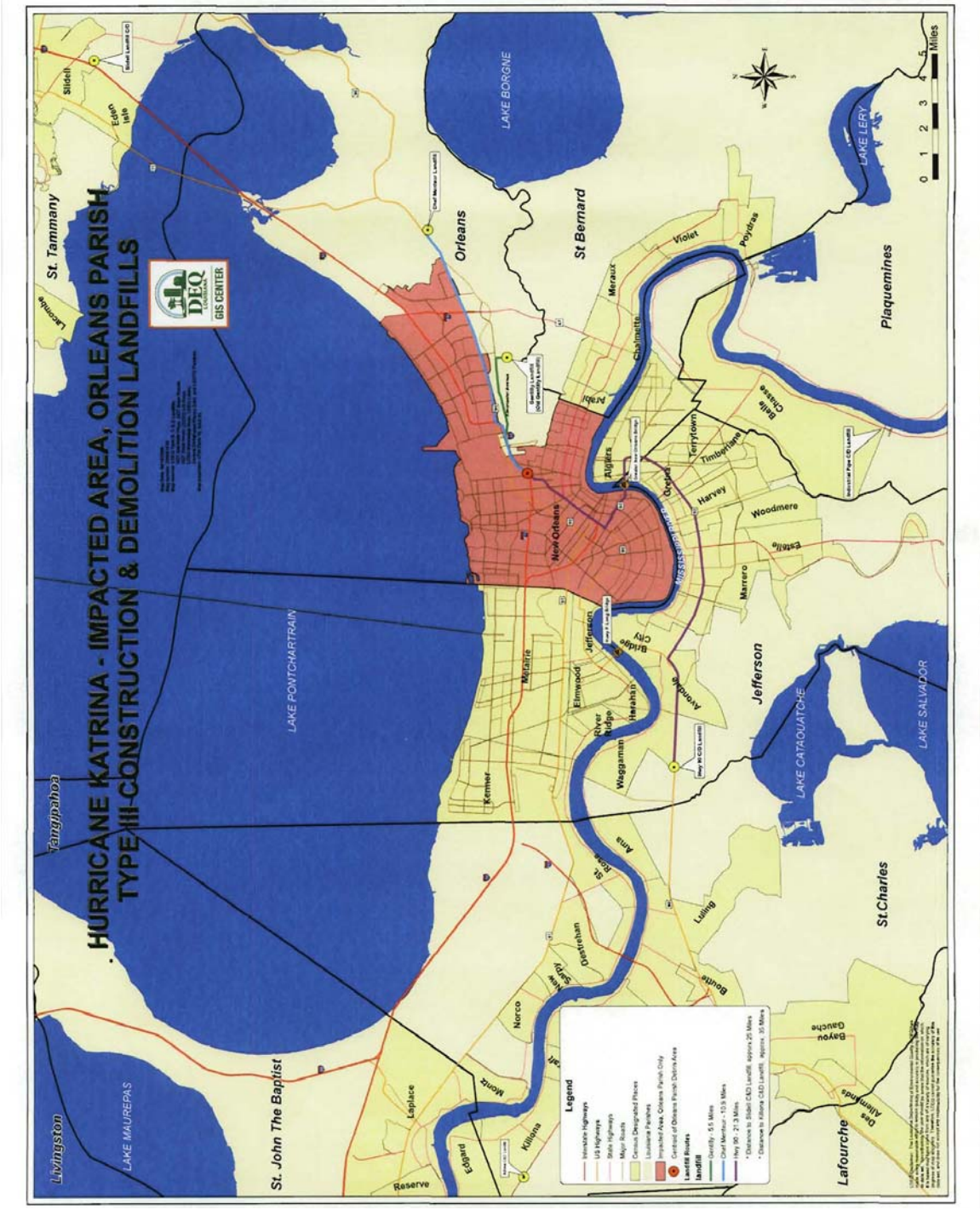

Fig. 3

In addition, as a result of the increased distance and travel time for hauling 75,000 cubic yards of C&D debris to Highway 90, as compared with the Gentilly

Landfill, waste haulers' truck emissions of volatile organic compounds, nitrogen oxides, carbon monoxide, particulate matter, sulfate, and ammonia would increase by nearly 300%, using EPA's MOBILE6 emissions model.

b. Decisional process with public input

Although the decisional document issued by the LDEQ on January 20, 2006 addressed concerns and opposition to the use of Gentilly Landfill that had been expressed at that time, the LDEQ revised and reissued the decisional document on August 28, 2006 to provide additional information and precautionary measures to address continuing public concern. Notice of the August 28th decisional document for public review and comment was provided to the public; see **Exhibits 27 and 29**. An LDEQ Administrative Order was issued that same date (**Exhibit 28**), limiting the weekly gate rate to 280,000 cubic yards and daily rate to 50,000 cubic yards, and requiring inclinometer and visual readings to confirm landfill stability, application of waste in lifts less than 25 feet, and implementation of the ground and surface water monitoring plans previously submitted.

Previously, on October 31, 2005, the Louisiana Environmental Action Network (LEAN) filed suit challenging the LDEQ order to commence which authorized the operation of Gentilly Landfill for disposal of hurricane generated C&D debris. The parties entered into a consent judgment. Issuance and public notice of the revised decisional document, along with issuance of the administrative order on August 28, 2006, met the terms of the consent judgment.

The revised decisional document noted that Gentilly Landfill had submitted a groundwater monitoring plan on July 7, 2006 (as required by the LDEQ's prior Administrative Order dated April 3, 2006, **Exhibit 19**). The plan, reviewed and approved by the LDEQ, provided for the placement of monitoring wells around the perimeter of the landfill to provide early warnings of potential relevant chemical changes in groundwater quality at the facility. The LDEQ further documented its analysis of the pathways of groundwater discharge to any surface water bodies, also based on public concerns.

Finally, also in response to public concern, the LDEQ contracted with a third party investigator to evaluate the slope stability of the final landfill elevation to determine what effect, if any, the landfill would have on the MRGO levee. The investigation included soil borings and analysis of the subsurface soils. The investigation concluded that the operation of the Gentilly Landfill would have no adverse affect on the MRGO levee. Notwithstanding the findings and conclusions of this investigation, the LDEQ required the installation of inclinometers to monitor any movement in subsurface soils, to provide sufficient advanced

warning to avoid any remote potential that this landfill could impact the MRGO levee.

The public comment period for the revised decisional document closed on January 18, 2007, and the LDEQ is currently evaluating all public comments received to determine if additional revisions to the decisional document are necessary or advisable.

2. Chef Menteur Landfill

Prior to Hurricane Katrina, the Chef Menteur facility had undergone full LDEQ permit review for a Type III C&D disposal facility. The permit was not granted because the conditional use permit required by LDEQ regulation was denied by the New Orleans City Council on March 20, 1997.

On February 14, 2006, the Mayor of New Orleans submitted a request for the use of the Chef Menteur facility as a disposal site for hurricane generated C&D debris; see **Exhibit 16**. After a careful examination of scientific and/or engineering considerations, sound reasoning, and a proper evaluation of practical alternatives, including the information gathered in site assessment using the collaborative process, the LDEQ issued site authorization on April 13, 2006, **Exhibit 20**, and a decisional document on April 26, 2006, **Exhibit 21**, supporting that authorization. Notice of the decisional document's availability for review and that LDEQ would receive comments was provided to the public comment; further, the document was translated into Vietnamese because of the significant Vietnamese-speaking community in the vicinity.[2]

Chef Menteur is located at 16600 Chef Menteur Highway, New Orleans, in Orleans Parish, Louisiana, approximately two miles east of Interstate Highway 510 on U.S. Highway 90 (Latitude 30° 02' 52", Longitude 89° 52' 55"). The site is owned by Expedition Enterprises, L.L.C., but leased to and operated by Waste Management of Louisiana, L.L.C. (Waste Management), a wholly-owned subsidiary of Waste Management Holdings, L.L.C. Pursuant to the exercise of LDEQ's statutory emergency authority, the Chef Menteur site was authorized to operate as an "Enhanced" C&D Landfill[3] to receive hurricane generated C&D debris.

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[2] See http://www.deq.louisiana.gov/apps/pubNotice/pdf/Chefmonteurdecisionvietnamese5-12-06.pdf.

[3] An "Enhanced" C&D Landfill is a C&D landfill allowed to accept asbestos-containing waste material under requirements (equivalent to Louisiana Emission Standards for Hazardous Air Pollutants (LESHAP) requirements) set forth by the LDEQ Declaration of Emergency and Administrative Order; and as found consistent by EPA with NESHAP for asbestos (National Emission Standards for Hazardous Air Pollutants) in a March 1, 2006, letter to the LDEQ, Office of Environmental Compliance, Assistant Secretary, Harold Leggett, Ph.D.

As set forth in the decisional document, the LDEQ determined that protection of human health and the environment, as well as public safety issues, warranted authorization of the Chef Menteur facility to receive hurricane generated C&D debris. Prior to granting emergency authorization to Chef Menteur, the LDEQ had authorized the utilization of the Gentilly Landfill for disposal of some portion of the massive amounts of hurricane generated C&D debris. However, due to public concern, the Gentilly Landfill was, at the time the Chef Menteur site request was being considered, required to operate under an LDEQ administrative order that limited Gentilly's intake of debris to 19,000 cubic yards per day. In addition FEMA unilaterally reduced the amount of debris it would provide reimbursement for to 5,000 cubic yards per day. These limitations resulted in a decrease in the volume of hurricane generated C&D debris transported and disposed in Orleans Parish. It also triggered the need for alternative C&D disposal sites.

Based upon Corps reports at the time, approximately 5,154,909 cubic yards of vegetative debris and 12,460,570 cubic yards of demolition debris in Orleans Parish remained to be processed. Additional debris not yet included in the Corps situation reports was expected due to a FEMA national flood insurance policy that required the elevation of certain structures in the New Orleans metropolitan area by as much as three feet. Many houses that could not be elevated properly were slated for demolition. In light of these Corps reports and based upon a Corps Structural Demolition Decision Analysis for the demolition of structures in Orleans Parish, the following results were predicted, unless additional receptor sites in close proximity to the anticipated demolitions were approved: 1) the estimated rate of demolition would require reassessment; 2) the execution, in approximately eight months, of the first phase of demolition (structures near collapse) would become questionable; and 3) the execution of the broader mission, which could include demolition of 20,000 or more structures, would require over six years.

Therefore, to expedite the removal and disposal of the remaining C&D hurricane generated and demolition debris associated with demolition activities in the area in and around Orleans Parish and particularly in the Ninth Ward Area, the LDEQ authorized the construction and operation of Chef Menteur disposal site.

As shown in **Figures 2 and 3** above, Chef Menteur is in close proximity to the major sources of hurricane generated C&D debris. As **Figure 4** below shows, the Chef Menteur site is approximately two (2) miles from the nearest residential neighborhood.

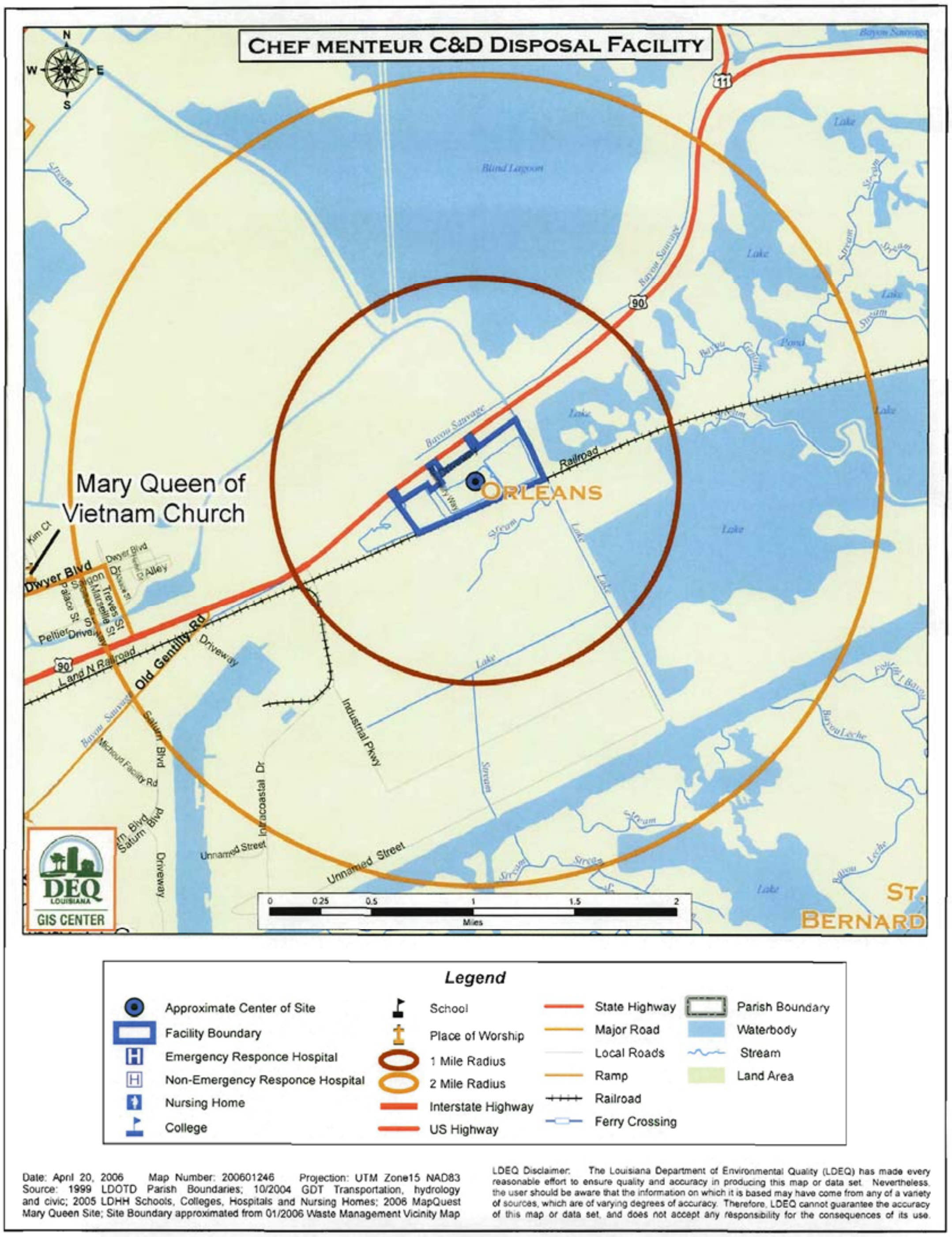
CHEF MENTEUR C&D DISPOSAL FACILITY
N
S
W
E
Mary Queen of
Vietnam Church
ORLEANS
ST.
BERNARD
Railroad
Blind Lagoon
Bayou Sauvage
Dwyer Blvd
Old Gentilly Rd
Land N Railroad
Industrial Pkwy
Intracoastal Dr
Unnamed Street
Saturn Blvd
Michoud Facility Rd
Driveway
Peltier Drive
Lake
Stream
Miles
0
0.25
0.5
1
1.5
2
DEQ
LOUISIANA
GIS CENTER
Legend
Approximate Center of Site
Facility Boundary
Emergency Responce Hospital
Non-Emergency Responce Hospital
Nursing Home
College
School
Place of Worship
1 Mile Radius
2 Mile Radius
Interstate Highway
US Highway
State Highway
Major Road
Local Roads
Ramp
Railroad
Ferry Crossing
Parish Boundary
Waterbody
Stream
Land Area
Date: April 20, 2006 Map Number: 200601246 Projection: UTM Zone15 NAD83
Source: 1999 LDOTD Parish Boundaries; 10/2004 GDT Transportation, hydrology and civic; 2005 LDHH Schools, Colleges, Hospitals and Nursing Homes; 2006 MapQuest Mary Queen Site; Site Boundary approximated from 01/2006 Waste Management Vicinity Map
LDEQ Disclaimer: The Louisiana Department of Environmental Quality (LDEQ) has made every reasonable effort to ensure quality and accuracy in producing this map or data set. Nevertheless, the user should be aware that the information on which it is based may have come from any of a variety of sources, which are of varying degrees of accuracy. Therefore, LDEQ cannot guarantee the accuracy of this map or data set, and does not accept any responsibility for the consequences of its use.

Fig. 4

Figure 5 shows, by way of comparison, the closer proximity of the landfills, including Highway 90 Landfill, to the community of Waggaman than that of Chef Menteur to the nearest community.

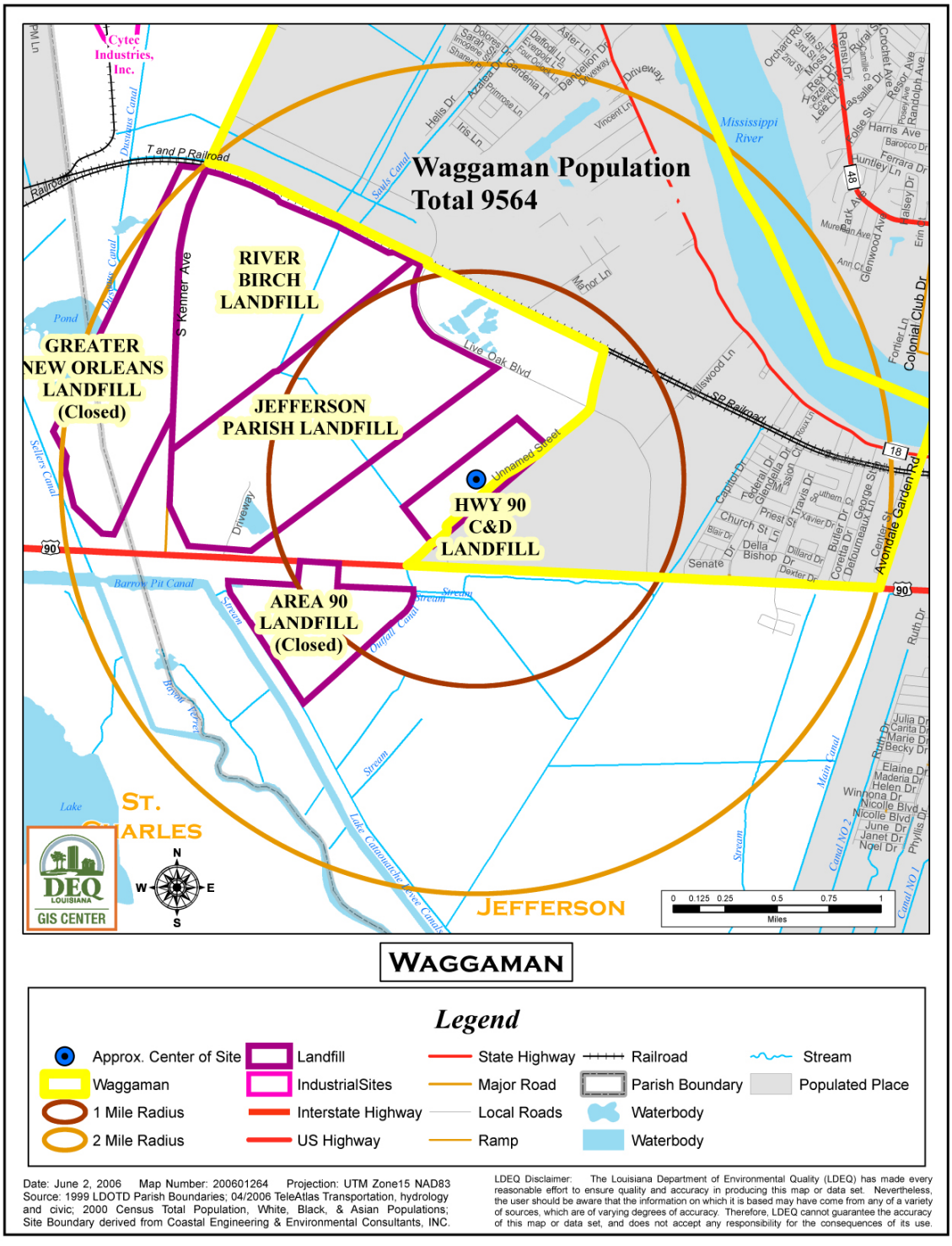

Fig. 5

The gravity of the emergency situation created by Hurricane Katrina required regulatory flexibility and a consideration of the timeframe for debris removal. With the authorization of Chef Menteur Landfill, the LDEQ estimated the timeframe for completion of debris disposal (when combined with existing the Gentilly and Highway 90 Landfills) to be as follows:

-- Remaining Vegetative Debris: 5,154,909 cubic yards
- Using Highway 90 only – 10.2 months[2] or 5.3 years[1]
- Using Gentilly and Highway 90 – 5 months[2] or 8.8 months[1]
- Using all three landfills – 3.4 months[2] or 4.7 months[1]

– Remaining Demolition Debris: 12,460,570 cubic yards
- Using Highway 90 only – 1.7 years[2] or 11 years[1]
- Using Gentilly and Highway 90 – 10.4 months[2] or 1.5 years[1]
- Using all three landfills – 7.2 months[2] or 9.6 months[1]

Note: 1 – Assuming landfill receives actual permitted weekly volume only
2 – Assuming landfill receives 133, 000 cubic yards/week

Along with the City of New Orleans' request to use the Chef Menteur facility, Waste Management also submitted operational information, including for example, waste acceptance guidelines, asbestos-containing waste material management, Louisiana Emission Standards for Hazardous Air Pollutant (LESHAP) Protocol, and the requirements to operate as an "Enhanced" C&D Landfill.

The LDEQ concluded that the Chef Menteur was environmentally suitable for such a C&D site. Historically, the Chef Menteur site had undergone an extensive permitting review process by the LDEQ pursuant to a permit application submitted in 1994 by Construction Debris, Inc.[4] The LDEQ found that additional factors rendered Chef Menteur suitable for emergency C&D disposal. These factors included:

1) Zoned industrial;
2) Proximity to areas where hurricane-generated debris is found and where demolition of storm damaged structures will be occurring, thereby resulting in reduced hauling time and cost, and reduced vehicle pollution effects, as shown on Figure 2;

[4] Although environmental suitable, the LDEQ never issued a permit to Construction Debris, Inc., based on its 1994 application because the Council of the City of New Orleans denied the conditional use permit for Construction Debris, Inc., which the facility was required to obtain under LAC 33:VII.519.N.

3) Adequate distance from neighbors as shown on Figure 3;
4) Previously reviewed by the LDEQ for placement of a C&D landfill pursuant to standard permitting procedures;
5) Evidence of suitable geology and engineering for the purposes of a C&D landfill[5] and is located within fastlands;[6]
6) Operated by a national company with experienced and properly trained employees;
7) Contains no known archeological or historical sites within 1,000 feet of the site boundaries;
8) Contains no rare, threatened or endangered species or habitats within 1,000 feet of the site boundaries;
9) Contains no state or federal parks or scenic streams within 1,000 feet of the site boundaries;
10) Easily accessible route;
11) Sufficient available acreage; and
12) Already contains existing excavations or borrow pits that will be utilized, after modification, for disposal cells (Cell 1 and Cell 2).

After carefully considering the request, and ascertaining the concurrence of local government, the LDEQ authorized the Chef Menteur site as a temporary C&D disposal facility authorized pursuant to the emergency orders. The facility was authorized to accept for disposal the following materials:

- Nonhazardous waste generally considered not water-soluble, including but not limited to metal, concrete, brick, asphalt, roofing materials (shingles, sheet rock, plaster), or lumber from a construction and demolition project;
- Furniture, carpet, or painted or stained lumber contained in the demolished buildings;
- The incidental commingling of construction and demolition debris with non-friable asbestos-contaminated waste (i.e., incidental non-friable asbestos-contaminated debris that cannot be extracted from the demolition debris, all in accordance with the requirements applicable to "Enhanced" C & D Landfills); and
- Yard Trash.

The wastes to be accepted were generated from direct and indirect effects of hurricane damage; the primary sources being Orleans, St. Bernard, and St. Tammany parishes. Available capacity of the landfill was set at approximately 7.2 million cubic yards, with the accepted waste being immediately landfilled in

[5] See Waste Management of Louisiana, Chef Menteur Disposal,, Emergency Disaster Cleanup Site Request: Supplemental Operational Information, Vol. 1, March 1, 2006, and March 15, 2006, Section 7.

[6] A "fastland" is property located inside the hurricane protection levee system, which is outside the jurisdiction of the local coastal management program.

prepared cells. After each cell reached its design limitations, they were to be capped according to approved LDEQ procedures. White goods[7] and putrescible,[8] hazardous, liquid, infectious, industrial, commercial, and residential wastes were not allowed to be disposed at the Chef Menteur site.

Public participation in this decision was achieved through the issuance of a decisional document setting forth the LDEQ's reasons for authorizing the Chef Menteur site; see **Exhibit 21.** This document was public noticed in major newspapers in both New Orleans and Baton Rouge, as shown in **Exhibit 22**. The public notices provided a 30-day public comment period. Because of the nearby Vietnamese-American community, a Vietnamese language version of the decisional document was made available to facilitate public review and comment. Public participation in the Chef Menteur authorization differed from the normal public participation process in that it came after the decision, not before.

The LDEQ's decision to authorize the Chef Menteur site met with opposition from the Vietnamese community and others. Lawsuits were filed in state and federal courts both in Baton Rouge and New Orleans. Many of these legal challenges are pending. However, the facility is no longer operating due to a cease and desist order issued by the City. Also, as a result of this cease and desist order issued by the City, the LDEQ has advised the facility that it intends to revoke its emergency authorization to operate because of the lack of local government concurrence for the continued use of the facility. Since then the facility has advised LDEQ that it will be closing and it plans to submit a revised closure plan to accomplish same in the near future.

3. Both Gentilly and Chef Menteur landfills met all technical and substantive requirements for permitted C&D landfills

Every permit application is evaluated for technical merit and compliance with the applicable regulations. In addition, the permit process imposes public participation requirements prior to issuance of the permit. The LDEQ went through its normal process in permitting the Gentilly Landfill, including the normal public participation prior to issuance of the permit in December 2004. LDEQ simply exercised its emergency authority to allow the facility to commence operation prior to completing some incidental tasks required by the permit.

Although Chef Menteur was not a permitted facility, the LDEQ had previously completed the full review for compliance with all technical and substantive requirements, even though no permit was issued. The authorization of Chef

[7] "White goods" are defined as "discarded domestic and commercial appliances such as refrigerators, ranges, washers, and water heaters." LAC 33:VII.115.
[8] "Putrescible waste" is defined as waste "susceptible to rapid decomposition by bacteria, fungi, or oxidation, creating noxious odors." LAC 33:VII.115.

Menteur to receive hurricane generated C&D debris followed the standard process developed by LDEQ in collaboration with its debris mission partners as part of the debris mission plan. The Chef Menteur site was required to meet all technical and substantive requirements for a permitted facility.

The only deviation from the normal permitting process for this site was that public notice and the opportunity to comment were provided after the fact rather than before the decision. Moreover, the LDEQ carefully considered the comments made and concerns raised and maintained its full authority to adjust or rescind the authorization as appropriate.

4. Hurricanes Katrina and Rita: "Cradle to grave" debris management

In addition to the thorough evaluation of proposed disposal sites, the LDEQ, in collaboration with its debris mission partners, has conducted (and continues to conduct) rigorous examination and robust oversight of the entire debris management process to minimize, to the maximum extent possible, any negative impact to human health or the environment from disposal of hurricane generated C&D debris. The primary focus of this oversight is to prevent any prohibited items from being disposed of at approved hurricane generated C&D debris disposal sites.

To address the removal and management of debris, the LDEQ prepared the Hurricane Katrina Debris Management Plan which was released on September 28, 2005, and revised on October 14, 2005, **Exhibit 5**. These earlier plans and lessons learned have been incorporated into the LDEQ Comprehensive Plan for Disaster Cleanup and Debris Management released July 2006 and revised August 2006, **Exhibit 26**. An integral part of these plans is the segregation of debris so that the various types of debris can be properly managed and disposed. Segregation of debris occurs at multiple points in the debris handling process and Federal and State oversight has also been implemented at various points in the process to further insure proper disposal.

First, residents and contractors are instructed to remove household hazardous waste, white goods, and electronic goods and place them curbside prior to gutting or demolishing houses. See **Exhibit 35**.These items are then picked up by designated contractors and taken to specific staging areas for further processing for either disposal or recycling.

To further insure proper debris segregation and disposal, spotters are employed to observe the loading of all debris so that only the debris designated for transport is loaded. Spotters are also located at staging areas to insure that only the debris types designated for that site are staged there. At disposal sites trucks must stop at towers where observers check each load and then additional

spotters check the debris as it is unloaded. If inappropriate waste is received, the entire load may be rejected or the inappropriate waste is segregated and the site is responsible for, and must document, the proper disposal of the inappropriate waste.

Finally, LDEQ and EPA constantly assess the entire debris management process to ascertain the proper handling and disposal of all storm related debris. Inspectors assess the debris stream, and the effectiveness of the spotters, as the debris is loaded and un-loaded at the source, staging areas, and disposal sites. Oversight of landfills and debris sites is conducted based on the type and volume of waste received. The major C&D landfills in the New Orleans area have had either LDEQ or EPA-START inspectors on site during all hours that the landfills are open.

The frequency of other sites' debris stream assessments varies from daily to once per two weeks, as noted above, based on type and volume of waste received. Inspections of scheduled demolition sites are coordinated with LDEQ and various entities. The chart below provides a summary of the oversight assessments of operations to date at landfills and demolition sites.

Operational Oversight/Assessments Post-Hurricane
(As of February 17, 2007)

Agency	Landfills\Debris Sites	Demolitions
LDEQ	2,071	1,379
EPA-START	919	2,031
Total	2,990	3,410

Figure 6 below provides a flow chart of the "cradle to grave" assessment and oversight of the hurricane related debris waste streams. This process is designed to prevent any prohibited items from being disposed of at any approved hurricane generated C&D debris disposal sites.

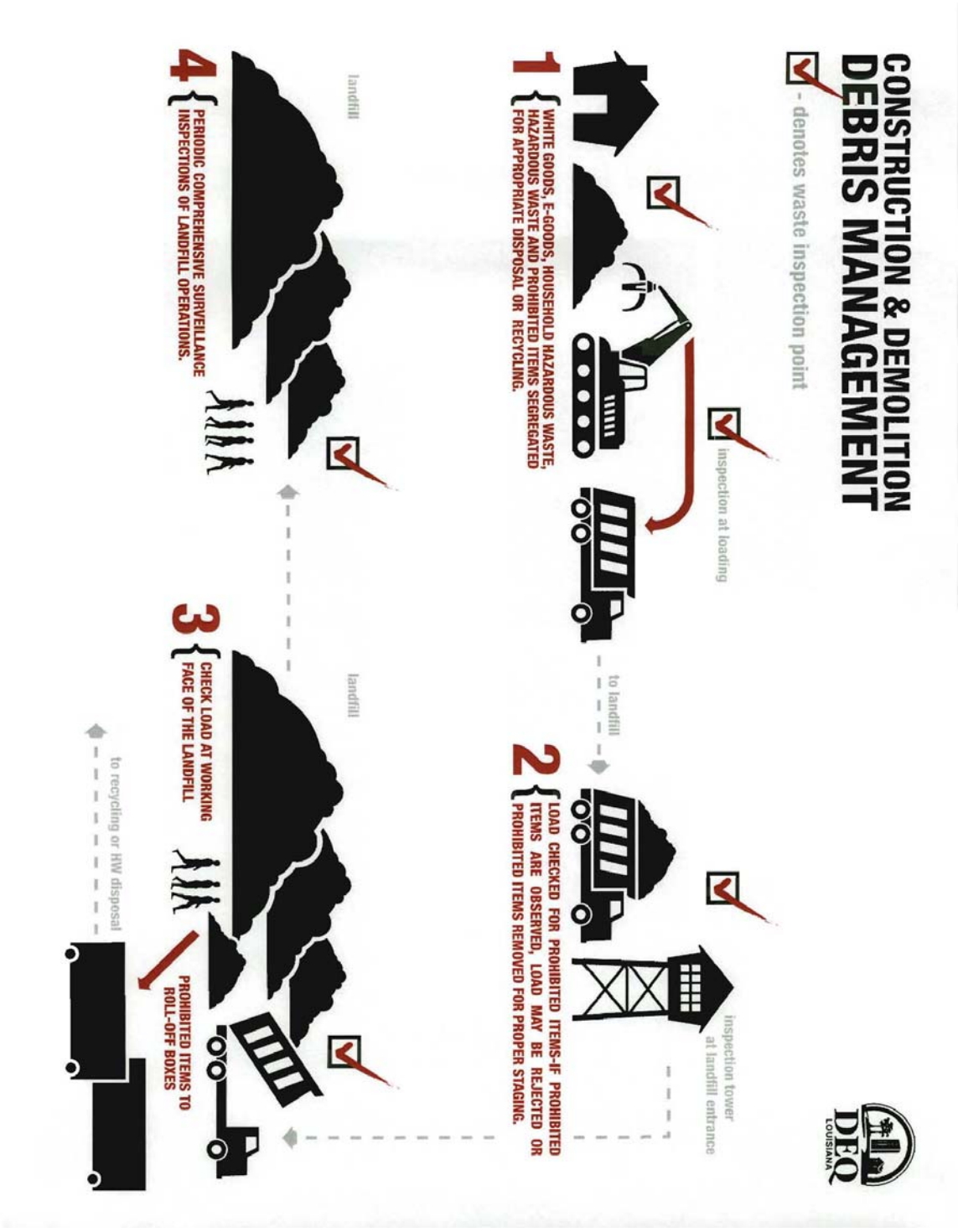
CONSTRUCTION & DEMOLITION DEBRIS MANAGEMENT
- denotes waste inspection point
inspection at loading
1 WHITE GOODS, E-GOODS, HOUSEHOLD HAZARDOUS WASTE, HAZARDOUS WASTE AND PROHIBITED ITEMS SEGREGATED FOR APPROPRIATE DISPOSAL OR RECYCLING.
to landfill
2 LOAD CHECKED FOR PROHIBITED ITEMS-IF PROHIBITED ITEMS ARE OBSERVED, LOAD MAY BE REJECTED OR PROHIBITED ITEMS REMOVED FOR PROPER STAGING.
inspection tower at landfill entrance
3 CHECK LOAD AT WORKING FACE OF THE LANDFILL
PROHIBITED ITEMS TO ROLL-OFF BOXES
to recycling or HW disposal
4 PERIODIC COMPREHENSIVE SURVEILLANCE INSPECTIONS OF LANDFILL OPERATIONS.
landfill
landfill
DEQ
LOUISIANA

Fig. 6

The best measure of the effectiveness of the "cradle to grave" management of the storm debris can be found in the amounts of hazardous and industrial waste, white goods, and electronic waste which were properly disposed of or recycled. As of February 14, 2007, more than 4.9 million containers of hazardous waste have been recovered and 22.4 million pounds of hazardous and industrial waste has been properly disposed. In addition, more than one million units of white goods and more than 956,000 units of electronic goods have been recovered and recycled.

5. Treated wood in C&D landfills

Environmental concerns have been raised concerning disposal of treated wood containing chromated copper arsenate (CCA) in C&D debris landfills. Federal and state environmental regulations define CCA treated wood materials as a non-hazardous waste. This classification is based upon the disposal of CCA treated timbers in the form of the material's intended use, wood products, and not in the crushed and ground form that is tested in determining whether a product should be classified as a hazardous waste (AWPI, 1997). Assertions that CCA treated lumber poses a threat to groundwater when disposed of in a C & D landfill are usually based upon studies that show that some CCA treated lumber exceeds the Toxicity Characteristic Leaching Procedure (TCLP) regulatory limit of 5 mg/L for arsenic. Leachate from CCA treated wood has been shown to range from 3.0 mg/L up to 7.5 mg/L (Dubey and Solo-Gabrielle 2004). TCLP regulatory levels are based upon a model that assumes wastes in an open dump will be surrounded and layered with decaying municipal trash, which will produce a harshly acidic environment, thus encouraging constituent chemicals to dissolve from the waste and migrate to groundwater. The TCLP regulatory level is the predicted leachate concentration that would be protective for a hypothetical drinking water well located 500 feet from the disposal site.

Conditions at the New Orleans C&D landfills are drastically different from the assumptions that were used in the TCLP model. There are no drinking water wells within miles of the landfill or potable aquifers anywhere in Orleans parish, for that matter. The nearest Point of Exposure (POE) at the landfill is not a nearby drinking water well, but surface water bodies located at least four times further away than the hypothetical drinking water well used in the TCLP model. Additionally, drinking water standards are not applicable or appropriate for the protection of a surface water body that is not used as a source of drinking water. A more appropriate measure of environmental protection is the Louisiana Surface Water Quality Criteria. The Surface Water Quality Criterion for arsenic is 5 times higher than the drinking water standard. This criterion for arsenic is protective of primary and secondary contact recreation, as well as fish and wildlife propagation.

Based upon these factors, leachate concentrations reported for both new and weathered CCA treated wood materials are not expected to result in any unacceptable impact to groundwater or surface water at or near south Louisiana C&D landfills. This conclusion is supported by the model used to develop the TCLP regulatory standards and confirmed by site specific evaluations using the models and protocols in Louisiana's Risk Evaluation/Corrective Action program (RECAP).

IV. WHAT WORKED WELL

A. Interagency Collaboration

Overall, the interagency collaboration following the hurricanes worked well, and allowed efficient and effective use of resources by federal, state, and local government agencies.

1. Management of waste stream

Proper management of recyclables, household hazardous waste, electronic waste, and white goods are examples of tasks where all levels of government collaborated and coordinated their activities and oversight to accomplish important goals of the debris management plan.[9] Maintaining close lines of communication between members of each subcommittee or task force contributed to the successful efforts.

2. Environmental Sampling and Reporting of Results

It is important to recognize that the basic premise of both the National Response Plan and the National Incident Management System is that incidents are generally handled at the lowest jurisdictional level possible. However, when both local and state resources and capabilities are overwhelmed, states may request federal assistance. Given the circumstances following Hurricanes Katrina and Rita, LDEQ requested assistance from the EPA to help with several tasks related to management and disposition of hazardous materials and with environmental sampling and assessment.

EPA and LDEQ, along with other federal and state agencies, coordinated to gather environmental samples, analyzed these samples, interpreted the results, and communicated the results to the public. Much of the sampling done was specifically tailored to address the concerns of local governments and the public in the areas affected by the hurricanes, as follows:

[9] See the first paragraph on page 37, supra, for the statistics as of February 14, 2007.

- A comprehensive investigation addressed the soils and sediments of the parishes that flooded; samples were analyzed for over 200 metals and organic chemicals. The study concluded there was no cause to anticipate any adverse health impacts to individuals, including children.

- Non-scientific catch phrases such as “toxic soup” and “toxic gumbo” used to describe flood waters in the impacted area raised public concern. The LDEQ and EPA conducted extensive sampling and determined that while the waters were unsanitary, they were not toxic and presented no long term health hazard. The agencies then issued a joint press release communicating to the public the analytical results and their conclusions.

- Fears about the safety of flood waters and Lake Pontchartrain led to fears about the safety of consuming seafood. Finfish and shellfish were sampled in Lake Pontchartrain, and in offshore and near shore gulf waters to confirm that seafood was safe to eat and no advisory against seafood consumption was warranted.

- Air sampling began immediately after Katrina and continued through November 13, 2005. Elevated concentrations of benzene were detected in the area affected by the release from Murphy Oil (Chalmette) shortly after Katrina; however, subsequent sampling showed results below screening levels. Particulate sampling (Orleans and St. Bernard Parishes) and air toxics (Kenner) found concentrations well below any level that would raise health concerns.

B. Planning for Permit Actions and Displaced Residents

The emergency orders also provided special procedures for public notice and public participation regarding proposed permit actions in the emergency areas. These special procedures were designed to facilitate notice to the large number of residents displaced by the hurricanes, and included such measures as increasing the number of required newspaper advertisements, and the extension of public comment periods.

Immediately following the hurricanes, the LDEQ deferred noticing of any environmental permits in affected parishes until a reasonable plan could be devised. A comprehensive plan was developed by November 2005 to provide for extra noticing of permits in parishes affected by hurricanes. That plan distinguished between 3 categories of impact and notice requirements. Amount of notice depended on how severe the damage was estimated to be and the percent of the population displaced. To widely disseminate the plan, the LDEQ issued notices in the *State Register*, *The Advocate*, and on LDEQ’s public notice

web page. The LDEQ sent the plan to the members of the Environmental Justice Interagency Taskforce (EJIT) group that was spearheaded by EPA Region 6.

Public notice and comment procedures were designed to vary according to the categorization of the parish in which the facility with the permit activity was located. The LDEQ evaluated all affected parishes according to all relevant factors, including but not limited to the following, to arrive at 3 different categories:

1. newspaper circulation rates (both paid subscriptions and free distribution), comparing pre-hurricane with then-current rates
2. basic services - power, potable water, and sewage treatment
3. local government approval for residents to return for long-term habitation
4. number of open schools
5. availability of locations to serve as document repositories and in which to conduct public hearings should they be requested
6. condition of roads

Parishes were identified as Category 1 when newspaper circulation rates and basic services had been restored to at least 90% of pre-hurricane levels, the parish was open for long-term habitation, and public schools had resumed operation. Initially, this category included the following 27 parishes: Acadia, Allen, Ascension, Assumption, Beauregard, East Baton Rouge, East Feliciana, Evangeline, Iberia, Iberville, Jefferson Davis, Lafayette, Lafourche, Livingston, Pointe Coupee, St. Charles, St. Helena, St. James, St. John, St. Landry, St. Martin, St. Mary, Tangipahoa, Vermilion, Washington, West Baton Rouge, and West Feliciana.

In Category 1 parishes, the LDEQ continued to implement the public notice procedures in place before the hurricanes. That included publication in the required newspapers, sending notice to individuals on the LDEQ's permits mailing list, placing notice on the LDEQ web page, and sending electronic notice to individuals who have registered to receive notices in this manner. The LDEQ Public Participation Group (PPG) used its knowledge of newspaper distribution rates and patterns to determine if the notice should be placed in more than one local newspaper. Some permit procedures required notice to also be placed in the official state journal, *The Advocate*.

Parishes identified as Category 2 when newspaper circulation rates and basic services had been restored to at least 50% of pre-hurricane levels, the parish was open for long-term habitation, and public schools had resumed operation. Initially, parishes in this category were St. Tammany, Jefferson, Terrebonne, Calcasieu, and Plaquemines. In Category 2 parishes, the LDEQ followed the same procedures provided for Category 1, with the addition of the following: Notices were placed in *The Advocate* to identify the permits placed on public

notice for the previous week, sorted by parish. These notices clearly identified the electronic web link to view the public notices and gave the phone number to call to request additional information or to find out where documents might be reviewed locally.

Category 3 parishes were the most severely affected parishes. Any parish not meeting all of the criteria for Category 2 were considered Category 3. As of this date, the parishes in this category are Cameron, Orleans, and St. Bernard. In Category 3 parishes, the LDEQ follows the same procedures as for Category 2, with the addition of the following:

1. Comment periods will be extended a total of 15 extra days.
2. Notices will be published twice in the selected newspaper(s).
3. An additional newspaper will be selected in which to publish the notices. This will be the newspaper with the largest circulation in a parish that physically adjoins the parish in which the facility is located.
4. If not already required to do so, the LDEQ will publish notices in *The Advocate*, the official state journal.

When arranging public hearings to solicit comments regarding permitting activities, the LDEQ will work with stakeholders to find suitable hearing site locations.

The plan was revised in October 2006, based on reevaluation of newspaper circulation, population reestablished, availability of public services, etc. The LDEQ continues to provide additional public notice procedures today. The dislocation of residents and the damage to infrastructure in the emergency areas has affected the ability of the LDEQ to solicit and receive comments on proposed permit actions. The procedures detailed above are intended to address these issues in a manner that offers the opportunity for meaningful public participation and that meets the requirements and intent of the state and federal permitting statutes and regulations.

V. WHAT DID NOT WORK WELL

Although, as noted above, federal, state, and local government agencies worked well together in the aftermath of the hurricanes to address the majority of response and recovery activities, no clear guidelines or references existed on how to provide regulatory flexibility for actions predictably necessary for an effective and efficient response to this level of disaster. Many of these actions, including the need for multi-level government collaboration, could have been anticipated. Forethought and coordination before the event could have significantly reduced the amount of resources necessary and the time frame for efficient government action.

The LDEQ had certain expectations when faced with the unprecedented events caused by the two hurricanes. It shared the expectations of its government partners that cooperation and coordination would be hallmarks of any successful response and recovery plan and its implementation. The lessons learned from Hurricanes Katrina and Rita and Louisiana's subsequent preparation for the 2006 hurricane season lead LDEQ to suggest that further steps be taken to prepare all regions of the country for the possibility of a natural or man-made disaster.

A. The time it took (6 MONTHS) to work out regulatory flexibility for various issues, such as the asbestos NESHAP

Shortly after Hurricane Katrina made landfall and the extent of the devastation became apparent, LDEQ recognized that it needed to coordinate with the EPA on potential National Emission Standards for Hazardous Air Pollutants (NESHAP) requirements regarding asbestos. On September 7, 2005, while New Orleans and parts of St. Bernard parish were still under water, LDEQ staff made inquiries of EPA Region 6 regarding burning construction and demolition debris not susceptible or that otherwise would be inspected as required by the asbestos NESHAP regulations.

Subsequently, acting upon the advice of personnel from EPA Region 6, on September 22, 2005, LDEQ requested a No Action Assurance (NAA) from the asbestos NESHAP for Hurricane Katrina recovery efforts. The request concerned inspection and demolition of residential structures and the potential burning of hurricane related and demolition debris that could possibly contain incidental asbestos.

In an effort to quantify the potential scope of the asbestos issue in recovery efforts, LDEQ staff, using in part US Census data for the impacted area, derived estimates of the possible number of residential structures that could reasonably be expected to contain asbestos, based in a large part to the age of the home. The results of this estimate raised the concern that there would not be enough trained asbestos inspectors available to staff near-term demolition activities.

In preparing the September 2005 NAA request, LDEQ also reviewed state and federal regulations and available EPA guidance. Available EPA guidance did not address either the extent of the devastation or the unique circumstances surrounding Hurricane Katrina's aftermath. The NAA request indicated that the inspection, segregation, and disposal steps set forth in EPA's guidance documents would take years to complete; meanwhile, the uninhabitable buildings would continue to pose significant health and safety concerns. LDEQ was also concerned that landfill capacity in the immediate area would be insufficient to

handle the estimated volume of debris generated by the storms and the resultant recovery efforts.

Further complicating the debris issue, the New Orleans area has a large and destructive Formosan termite infestation. To prevent further spread of this termite, the Commissioner of the LDAF issued a quarantine on the movement of any wood or cellulose products from certain parishes unless it has been fumigated or otherwise treated for Formosan termites and the movement is approved by the Commissioner or the Commissioner gives written authorization for untreated material to be moved from the named parishes. Therefore, disposal of the construction and demolition debris in landfills outside of the affected parishes would require treatment with pesticides under the State Quarantine Order designed to prevent the spread of the Formosan termite to less-infested areas.

In its NAA request, LDEQ outlined a set of demolition and disposal practices for the New Orleans area designed to remove uninhabitable structures in an expeditious manner while minimizing public health and safety risks. By adopting the practices outlined in its request, LDEQ estimated that the New Orleans area could be free of debris within six months.

Then Hurricane Rita struck southwest Louisiana, adding its destruction to a state already reeling from a devastating blow.

On October 21, 2005, an NAA was issued by EPA headquarters. This NAA acknowledges:

> The flooding of the City of New Orleans and nearby communities following Hurricanes Katrina and Rita poses particularly difficult challenges for recovery and reconstruction efforts. Louisiana estimates that the hurricanes and floods left as many as 260,000 homes structurally unsound or otherwise uninhabitable. The State believes as many as 170,000 of these structures, a significant fraction of which are residences, may contain asbestos, lead paint, or other hazardous materials. The volume of debris from the demolition of these structures plus other debris from the hurricanes and floods is overwhelming.

In its October 2005 NAA, EPA offered the following response:

> EPA at this time is exercising its enforcement discretion to grant LDEQ a no action assurance for the federal asbestos NESHAP for limited demolition and disposal of asbestos-containing waste material in the parishes noted above, in support of parametric

> evaluation burns, as further described below. To qualify for the no action assurance, those activities must be carried out in accordance with the LDEQ guidelines, Appendix B to this letter (concerning parametric evaluation burns), and the conditions set forth in the attached document entitled "EPA's Conditions For Granting A No Action Assurance And Associated Recommendations For LDEQ Asbestos Demolition And Disposal Procedures For Jefferson Parish, Orleans Parish, Plaquemines Parish And St. Bernard Parish In The Aftermath Of Hurricane Katrina And Hurricane Rita." The conditions are also accompanied by recommendations. As a further condition of this no action assurance, LDEQ must take all necessary steps to prevent or minimize any increased risk to human health and safety. At this time, the no action assurance does not extend to any other federal requirements that may apply to the limited demolition and disposal of asbestos-containing material in support of the parametric evaluation burns or to any other demolition and disposal of structures in the New Orleans area under the State's proposed plan.

The NAA was of limited duration and scope:

> This no action assurance will extend for a period of six months from the date of this letter and will only apply at present to demolition and burning carried out for purposes of Appendix B. After completion of Appendix B and evaluating the data, EPA may provide, as appropriate, a written notice to LDEQ that the no action assurance is being extended to further demolition and burning, subject to the conditions outlined in the attachment. As part of that evaluation, EPA will also consider whether the no action assurance should extend to other federal requirements that may apply to the demolition and disposal of structures in the New Orleans area under the State's proposed plan. Prior to the expiration date, the situation will be reviewed to determine if this no action assurance and accompanying conditions need to be modified or revoked. This no action assurance applies only for the specified activities in the parishes noted above.

As the ACD burn test project was being developed after the October 2005 NAA, LDEQ began development in November 2005 of a protocol for compliance with

its asbestos LESHAP regulations.[10] In January 2006, LDEQ forwarded a draft "LDEQ Protocol to Comply with the NESHAP and LESHAP Regulations" to EPA.

As a result of EPA and LDEQ work on this protocol and extensive discussion of the issues, which included a joint LDEQ/EPA Region 6/EPA Headquarters meeting in Baton Rouge, EPA issued an NAA on February 3, 2006. This NAA provided regulatory flexibility as follows:

> …residences that are subject to a government issued demolition order based on the residence being 1) structurally unsound but not necessarily in danger of imminent collapse, or 2) moved off of its foundation, to be treated as though the demolition order is based on a determination that the house is structurally unsound and in danger of imminent collapse. Under section 61.145(a)(3) of the asbestos NESHAP regulation, buildings subject to a government issued demolition order based on a determination that the building is structurally unsound and in danger of imminent collapse are not subject to otherwise applicable requirements for inspection and removal of asbestos prior to demolition." The effect of the February 3 No Action Assurance allowed residences subject to government issued demolition orders based on the structures being unsound or moved off their foundations to be demolished and disposed of in accordance with the streamlined requirements of section 61. 145(a)(3).

The NAA further allowed this determination to be made for groups of structures (i.e. blocks or subdivisions). This NAA was effective for twelve months from the date of issuance.

On February 24, 2006, EPA extended the February 3, 2006 NAA as follows:

> …the February 3, 2006 No Action Assurance to residences that are subject to government issued demolition orders because they are uninhabitable for other environmental reasons (e.g., from excessive flood damage rendering the home uninhabitable). Under this No Action Assurance, as under the February 3 action, such residences may be treated as though they are subject to government issued demolition orders based on a determination that they are structurally unsound and in danger of imminent collapse and thus subject to section 61.145(a)(3) of the asbestos NESHAP regulation. In other words, LDEQ, the [Corps], local governments, or persons

[10] As a delegated program, LDEQ had adopted asbestos regulations which in most cases mirror the federal language, but which are in some areas more stringent.

> acting under direction of any of these governmental entities, may apply to such residences the NESHAP requirements governing buildings that are "structurally unsound and in danger of imminent collapse." As noted above, for such buildings the asbestos NESHAP dispenses with prior inspection and removal of asbestos but requires notification and proper handling, transport and disposal. EPA is taking this action because it recognizes the necessity of addressing a number of residences not covered by the earlier No Action Assurance, but in need of expeditious demolition and removal.

The February 24, 2006 NAA also extended the NAA coverage to local governing bodies and indicated that "…*since the enhanced C&D landfills, as well as Louisiana's permitted Type I and Type II landfills are required by Louisiana to either meet or exceed federal disposal standards under the NESHAP, EPA will defer to the State to set disposal location priorities*." EPA also indicated that *"…our staffs are revisiting the use of Air Curtain Destructors and grinders as means of debris volume reduction to further assist in addressing the lack of adequate landfill space.*"

In a letter dated March 1, 2006, EPA indicated that the "LDEQ Protocol to comply with the LESHAP Regulations" was consistent with NESHAP regulations and/or the NAA letters of February 3 and February 24, 2006. At this time, LDEQ, local governments, and federal partners finally had a consolidated roadmap for demolition and recovery efforts as they pertained to the asbestos NESHAP. Recovery work was able to move forward.

The length of time necessary to obtain the NAA from EPA resulted in unnecessary delays in the recovery. The need for EPA guidance and/or assurance as to the asbestos NESHAP's application was foreseeable, given the inevitability of a disaster to a heavily populated area, whether from hurricane, earthquake, tornado, flood, or other causes.

B. Lack of Clear Guidelines for Use of Tools/Methods To Meet Disaster Needs

No federal guidelines existed regarding use of tools and methods to manage hurricane or other disaster related debris. For example, due to the amount of debris, the LDEQ considered burning as a possible method for managing some hurricane generated C&D debris. However, upon consultation with EPA, several issued were raised, including but not limited to the asbestos NESHAP.

The LDEQ attempted to work with EPA and FEMA to conduct a test burn of C&D material to gather appropriate data and information to support fact based

decision making. The scope of the test burn was expanded exponentially over time, and in the final discussions, no funding source was available to conduct the burn as designed.

The scale of the combined disasters caused by Hurricanes Katrina and Rita only highlights the need for a variety of debris management tools and methods that both state and federal partners can agree are protective of public health, safety, and welfare and the environment in advance of the next disaster.

C. Lack of Coordination in Granting Regulatory Flexibility

Since the issuance of the emergency orders, an issue has been raised that the following authorizations of unpermitted water discharges may violate the Clean Water Act:

1. discharges from potable drinking water plants,
2. discharges from temporary housing, and
3. discharges from debris management sites.

As noted above, people in a disaster area must have drinking water, sanitary facilities, shelter, and fuel.

EPA advised the LDEQ to use its enforcement discretion, i.e., give no action assurances, rather than authorize the discharges. Although the no action assurance manifests the agency's determination not to prosecute violations, it does not provide relief or protection from potential citizen suits and other third party suits.

Furthermore, EPA has an interest where federal programs are implicated, such as Clean Air Act, Clean Water Act, and RCRA programs, when the state has been delegated program authority. The LDEQ was able to provide necessary regulatory flexibility to respond to the emergency through its emergency orders, but could offer no relief or assurance from similar federal requirements or the threat of overfiling by EPA. Regardless of the type of environmental regulatory authority in place, in the aftermath of a disaster, the public has a right to expect that those with authority will work together in a coordinated way to make decisions protective of human health and the environment and that the public can rely upon the regulatory flexibilities provided through a rational process of decision making that takes into account the practical needs of those in the disaster area.

D. Lack of Coordination, Blurring of Lines of Responsibility

FEMA, EPA, LDEQ, and the Corps were all members of the debris mission task force, as noted previously in the Debris Mission Task Force section. The LDEQ

expected that agencies would implement their portion(s) of the debris management plan or other response and recovery activities, and that deference in environmental matters would be given to environmental agencies. As a result, the LDEQ did not expect that FEMA would independently attempt to reevaluate receipt of hurricane debris at Gentilly Landfill, after the EPA and the LDEQ had approved that site for receipt of such debris. EPA and LDEQ were the debris mission partners with responsibility for environmental considerations and compliance at hurricane debris disposal sites, and the LDEQ had approved the site operation plan, with EPA's concurrence.

This unexpected insertion by FEMA into a smoothly running collaborative process caused direct, foreseeable impacts, not least of which was the need for both LDEQ and EPA to commit resources to addressing the various levels of concern expressed by the public, media, regulated community, and government, including this very committee, that understandably arose.

One example of the detrimental consequences of violating this principle occurred with regard to the approved use of Gentilly Landfill to receive hurricane related C&D debris. The LDEQ issued a standard permit to Gentilly on December 28, 2004. LDEQ then issued an emergency authorization to the facility to start receiving hurricane related C&D debris on September 29, 2005. Shortly thereafter, the Corps began sending a substantial amount of C&D debris to this facility.

At FEMA's request, EPA performed an investigation and analysis concerning the potential federal CERCLA liability for use of the Gentilly Landfill and issued a memorandum November 11, 2005, **Exhibit 11**. In EPA's opinion, the use of this facility to receive hurricane related C&D waste would impose no CERCLA liability on FEMA. The memo offered "recommendations for current usage of the landfill to avoid a release of hazardous substances that would necessitate a superfund response." EPA's findings and conclusions were consistent with the prior study performed by the licensed engineering firm of EE&G, the Corps' subcontractor.

Without discussion or consultation with or notice to its debris mission partners LDEQ and EPA, FEMA commissioned a study by National Infrastructure Support Technical Assistance Consultants (NISTAC) to examine the potential impact by the Gentilly Landfill on the environment due to its use as a C&D landfill to receive hurricane related C&D debris. NISTAC's draft report concluded that FEMA could be exposed to high risk of future environmental liability based on current conditions and environmental history of the Gentilly site.

Time and effort was required by both LDEQ and EPA, first to review, then to consult together, and finally to refute the findings of the draft NISTAC report prematurely released. See **Exhibit 18**, February 16, 2006 LDEQ press release

entitled “DEQ refutes claims in FEMA report concerning Gentilly Landfill.” These expenditures reduced the resources available to focus on priority debris mission and other tasks.

Based on the never finalized NISTAC report, FEMA instructed the Corps to limit the amount of debris sent to Gentilly Landfill on a daily basis to 5,000 cubic yards per day, which resulted in a substantial reduction from daily intake at the facility. Reduction of the amount of debris sent to Gentilly Landfill potentially had the following impacts: increased time, distance, and expense for disposal.

E. Illegal Dumping Has Gotten Worse

The volume of hurricane related debris from the two storms, combined with congestion at the facilities approved to receive such debris, and volume limits imposed unilaterally by FEMA have likely contributed to an increase in illegal dumping, including illegal dumping at night. The LDEQ, although receiving an increased number of complaints about such dumping, had and has insufficient resources to provide adequately secure surveillance activities. The impact of the 2005 hurricane season exacerbated what was already a shortfall of resources to deal with illegal solid waste disposal statewide.

Solid waste issues for illegal dumping are mainly the province of local governments. Traditionally, LDEQ field inspection services in the area of solid waste focus on permitted landfills. However, complaints, including those concerning illegal dumping, are investigated as logged into the LDEQ’s Single-Point-of-Contact system.

In construction and demolition activities, as with most business operations, time means money. The increased waiting time at local landfills and landfill operating hours contributed to increased illegal dumping; piles of C&D debris were discovered within a short distance of the landfills’ entrances.

Added to the commercial or business factors fostering increased illegal dumping were factors that may contribute to illegal dumping by individuals. With the discontinuation of curbside waste pick-up, residents returning to the area faced several challenges, including the following: (1) local governments set time frames to gut or demolish homes; (2) the uncertainty of programs to assist with rebuilding costs or needs; (3) the uncertainty of the return of utilities or development to certain areas; and (4) the high cost of contractor work, including demolition and debris removal.

Because of the loss of basic city services necessary for public health and safety, available local government resources were focused first on restoring those services. The loss of a police presence in various areas resulted in increased

illegal activities, creating a security concern for surveillance personnel, especially for night surveillance in largely uninhabited areas where illegal dumping occurs. As illegal solid waste dumping has increased, it has become a serious threat to human health and the environment—LDEQ investigators have discovered illegal disposal of asbestos waste, medical and veterinary products, white goods, and remnants of car crushing operations, etc., in the hurricane affected areas.

VI. RECOMMENDATIONS AND REQUESTS

A. National Plan or Guidelines for Regulatory Flexibility for Emergency Response

EPA, in consultation with state agencies and appropriate federal agencies, should develop a national plan or guidelines that provides for environmental regulatory flexibility and debris management necessary to respond to emergencies. At a minimum, this plan should provide for a process to obtain and provide authorization of activities necessary to respond to the emergency that would normally require a permit from the state environmental agency or the EPA. Even more useful would be a plan that includes agreed processes, tools, methods, guidelines, etc. This would require all affected agencies reaching consensus together before the disaster occurs.

Regulatory flexibility would include guidance or instructions for achieving compliance under disaster conditions or relief from compliance and how to obtain it. Reporting requirements, for example, are typically extended or waived when the communication infrastructure has been affected or there has been an evacuation or substantial damage.

The LDEQ suggests, based on its recent experiences, that the following areas be included, at a minimum, in the national plan/guidelines to achieve consistency in federal and state disaster responses and to clarify public expectations in environmental matters:

- authorization of necessary water discharges, e.g., from potable water treatment plants and temporary housing locations;
- requirements imposed on hurricane debris management sites;
- selection criteria for debris management sites;
- environmental evaluation methods and tools (including, e.g., sampling protocols); and
- demolition and disposal operations' compliance with the asbestos NESHAP, etc.

The plan or guidelines should also address the tools and methods appropriate for debris management, such as land disposal, chipping, grinding, recycling, and burning. There should be studies of these various debris management tools,

including funding to cover the cost of testing to establish the most efficient methods of disposal of disaster related debris, e.g., trial burn of construction and demolition debris, to properly evaluate burning as a tool for disposal. Accordingly, the LDEQ recommends that funding be made available to properly evaluate the various debris management tools, including assessment of burning as an option for management of disaster related C&D debris. All necessary agencies should participate to develop the consensus on each tool's appropriateness for use. As new technologies and tools become available, they should also be evaluated and incorporated into the plan or guidelines as appropriate.

Determination of anticipated emergency response and recovery needs for regulatory flexibility while protecting human health and the environment would allow better utilization of resources, avoid delay, and speed recovery.

B. Lines of Authority and Tasked Responsibility Should Be Respected

Federal emergency management processes and authority should respect to the maximum extent possible (i.e., unless national security is at issue) decisions and determinations made jointly by federal and state agencies with jurisdiction over human health and the environment. Specifically, on environmental issues, non-environmental agencies should defer to environmental agencies who have the primary responsibilities for environmental protection and are staffed and equipped to provide that protection even in an emergency. Environmental agencies, as a matter of routine, must be prepared for and respond to environmental emergencies.

The LDEQ recommends that the principle of respect for lines of authority and task assignments be incorporated in a meaningful way in the national emergency management process. Concerns by one or more agencies outside the area of authority or task force should be raised and left with the authorized and/or assigned agency/agencies. Allowing an agency outside the process to interfere with the mission or task promotes confusion and inefficiency and could have serious adverse consequences.

C. Physical Security for Environmental Priorities

The federal mission should encompass funding for physical security, including armed escort, for necessary and/or priority investigation of threats to human health and the environment by federal and state agencies with jurisdiction thereof, in a disaster area throughout the response and recovery phases. As discussed above, assistance can quickly become critical to combat environmental priorities, such as curbing illegal dumping. The loss of effective law enforcement presence in a disaster area leads to increased problems,

including increases in illegal solid waste dumping that can pose a serious threat to human health and the environment.

By maintaining a visible law enforcement presence in the locations impacted or most likely to be impacted, illegal dumping can be effectively suppressed in disaster and recovery areas. Tools such as arrest and seizure and forfeiture of equipment used in the illegal dumping will serve as deterrents as word is quickly spread to the community that illegal dumping is not tolerated.

Because the amount of money that an illegal dumper stands to gain or save can be significant, civilian authorities (LDEQ inspectors) are placing themselves literally into the line of fire with the illegal dumper, especially if the inspector finds himself or herself alone at night confronting several dumpers at one time.

Although the LDEQ has a small criminal investigations unit of five commissioned officers, it would be impossible to field operations for extended periods due to officer fatigue and safety concerns. Additional resources are therefore necessary to provide security needs for LDEQ surveillance to combat the increased illegal dumping.